OCTOBER 23, 1961

PAPER TRADE JOURNAL

Wide Range of Problems Thrashed Out at Paper-Plastics Meeting

Some Critical Comments About This Industry's Balance Sheets

How Downingtown Brackets Costs Of Control Valve Maintenance

More on Handling of Coatings and Additives. In This Issue: Starch

Contents of the Week, pages 4-5

FIRST CHOICE

of leading mills for JOB LOT Marketing

ONE BAY IN ROOSEVELT WAREHOUSE: SKIDS READY FOR IMMEDIATE SHIPMENT

Into this huge warehouse moves a continuous stream of paper . . . all sizes, all weights, all grades. Here, in a superbly equipped plant, this vast inventory is efficiently converted to meet the diverse demands of well-developed American and foreign markets.

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NIMBLE GIANT Roosevelt converts rolls of paper to sheets on automatic slitting equipment (left), then trims sheets four sides to exact specifications on guillotine (right); shidded sheets are wrapped, shipped same day.

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GOODYEAR

Photograph taken with cooperation of The Sorg Paper Company, Middletown, Ohio, and American Tag Company, Chicago, Illinois.

They ended the "deadlocks"—cut labeling costs 52%—with CHEMIGUM LATEX!

An annoying problem for meat packers was labeling hot, freshly skinned beef. Ordinary labels wouldn't stick. Notations were blurred by the grease. The only answer was tags applied with metal "deadlocks" or hooks—a costly, time-consuming operation.

A cheaper, better solution was found, however, in paper impregnated with CHEMIGUM LATEX. Its toughness plus resistance to grease and moisture—over a range of temperatures—permitted labels that remained in place, intact and clearly legible, yet peeled off cleanly. That ended the deadlocks at a healthy 52% savings in label costs.

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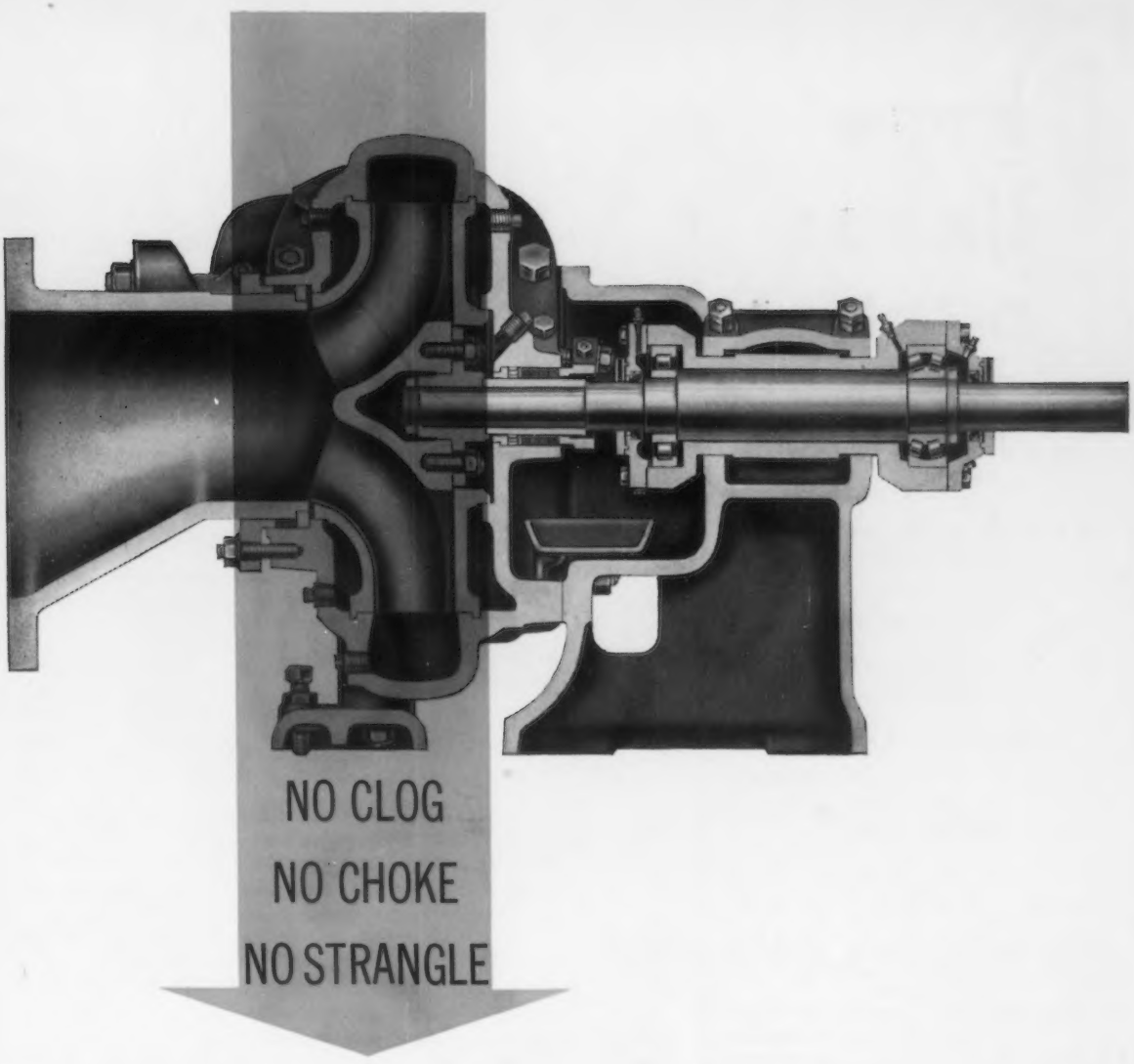

This pump swallows paper stock whole

Its impeller shows you why.

The Model 3135 has an open, end suction, non-clogging impeller. Stock flows easily into its big eye, pushed along by inlet vane tips, warped to give a screw conveyor effect. The warped vanes also prevent water separation of stock, without supplemental feeding mechanisms.

Nothing catches at the eye—no fibres, strings, or other material—because there is no nut or other obstruction there. Internal lock nuts hold the impeller to the shaft flange.

Stock can't jam between the back impeller wall and the stationary side plate since both ejector and main vanes follow the same curve.

Longer packing life. Pump-out vanes on the impeller back also reduce pressure on the stuffing box for a greatly extended packing life.

Restore clearance easily. When wear occurs between impeller and suction side plate, simple external adjustment moves shaft and impeller axially towards suction side plate.

Free bulletin gives performance curves of Model 3135, an illustrated step-by-step description of the fast removal of the rotating element, specifications, and other useful information. Ask for Bulletin 723.1.

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GOULDS PUMPS

PAPER TRADE JOURNAL

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FEATURED THIS WEEK

Big Future Indicated for Paper-Plastics Combinations

Continued growth and many new potential uses are predicted for addition of plastics in or onto paper—Paul D. Van Derveer **26**

More Attention to Cost of Control Valve Maintenance Is Needed

A definite presentation of some of the basic and normal problems is made and evaluated in terms of real costs both in direct out-of-pocket expense and in losses due to down-time—Robert Wright **30**

Press Felts and Water Removal—Part II. A New Theory of Press Nip Dynamics

In Part I it was found that both felt and sheet properties differ considerably under high speed impact conditions. Implications of these findings regarding felt and press section design are now discussed—Dan B. Wicker **33**

Financial Aspects of Pulp and Paper Manufacture and Sale

Some critical observations of an investment adviser who is a specialist in our industry **36**

Starch Weighing and Handling System Can Serve Dual Purpose

Starch for both size press application and addition to the stock can be handled by a single system. The author, well qualified in this field, tells what design considerations are involved—William G. Farin **38**

SUBSCRIPTIONS →

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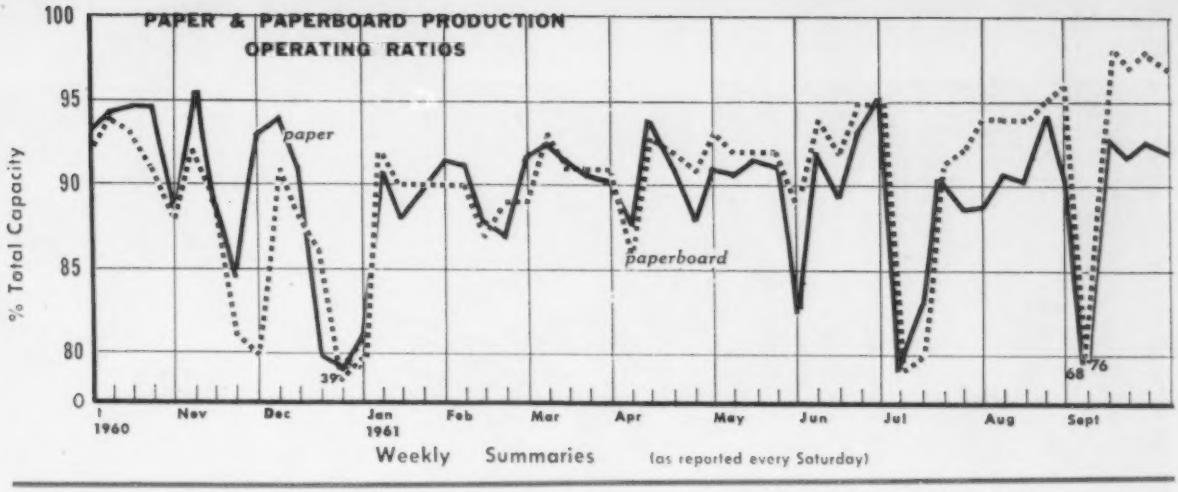

NEWS OF THE WEEK

Union Bag Offers Bids for Two Firms . . . London Company to Sell Swaziland Pulp . . . American Can Joins Akerlund & Rausing To Make Dixie Cups in Sweden . . . Container Corp. Constructing Plant at Carol Stream, Ill. . . . Construction on Alberta Newsprint Plant Starts .....

Price Brothers Appoints Executives . . . C-Z Announces Staff Changes at Camas . . . Gleason Joins Consolidated Paper as Purchasing Director . . . Desiderio Elevated to V-P At Whippany Paper Board . . . Hoover Named Assistant to Continental Can President .....

Sonoco Products Acquires Canadian Firm . . . Schmidt Joins Weyerhaeuser as Cedar Rapids Plant Mgr. . . . Kelly Promoted By Mead Container . . . Specialty Papers Announces Managerial Changes . . . RAP Industries Appoints Board Member .....

Trends *11*

News of the Industry *13*

Paper People *15*

News of Converters *18*

New Literature *35*

Prices of Fibers *42*

News of Suppliers *46*

New Equipment & Supplies *50*

Figures of the Week *56*

Classified Advertising *58*

Advertisers Index *62*

REMEMBER THESE DATES

Fall Convention, National Paper Trade Assn., Conrad Hilton Hotel, Chicago, Ill.	OCTOBER 23-25
Alkaline Pulping Conference, Rice Hotel, Houston, Texas	NOVEMBER 1-3
CPPA Technical Section, Annual Meeting, Queen Elizabeth Hotel, Montreal, Canada	JANUARY 22-26

Oakite "on-the-fly" felt cleaning boosts paper board production two tons a week

Felt cleaning at one paper board mill proceeded routinely. Twice a week, the line was shut down, felt removed and washed in a cleaning solution. A new, simpler plan was suggested. It consisted of installing a permanent shower system. Perforated pipes were run across the felt—one close to the point where board leaves the felt, a second close to the point where felt picks up the wet stock.

Now, when cleaning is needed, a hot solution of Oakite 85 showers onto the felt, loosens sticky soil, and is rinsed off under the second shower—and all while the felt is working. The new system cuts out two shut-downs a week, for a production increase of two tons of board.

Ask your Oakite man to tell you about modern cleaning systems that can help you reduce downtime, increase production, save money. Or, write for Bulletin F-4647 which tells more. Oakite Products, Inc., 68 Rector Street, New York 6, N. Y.

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over 50 Est. 1909 years' leadership in industrial cleaning

Modern Cleaning Systems Keep Downtime DOWN

Export Division Cable Address: Oakite Technical Service Representatives in Principal Cities of U. S. and Canada

From S. W. Hooper: a time-and-pressure bark dehydration method

A wet sponge is not just squashed, it is squeezed. Similarly two factors – time and pressure – are needed to dehydrate bark. This is the principle of the Cowan bark press, which applies sustained and progressive pressure to turn wet bark into combustible material. An oil hydraulic system regulates a feed plunger and pressing beam operating in a chamber with three force-drainer sides.

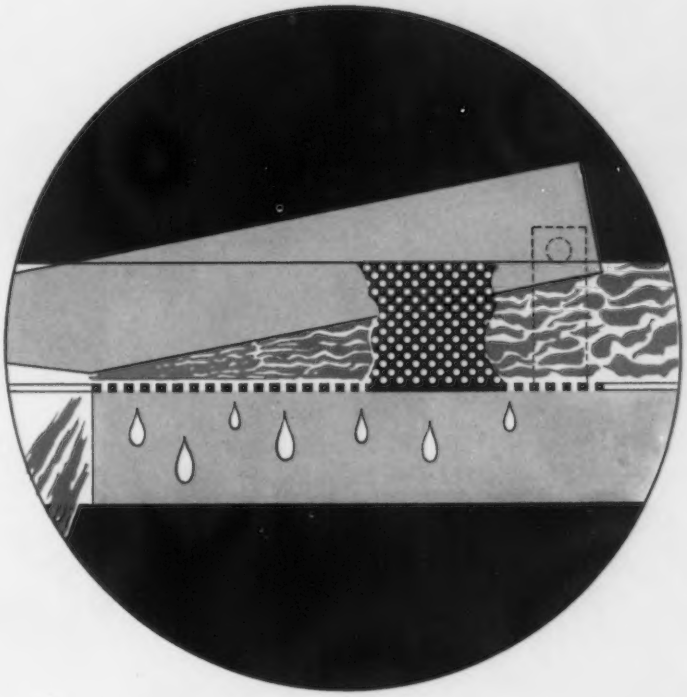
Water escapes freely because the floor and walls of this unique pressing chamber are of heavy steel plate perforated overall.

The feed-and-press cycle is completely adaptable as to speed and pressures by simple adjustments of throttle valves and limit switch settings.

Sustained pressure allows time for water to drain away. But the unit responds automatically to the rate of feed, and accepts increased loads where moisture tolerance is higher. It can withstand many times the cyclical pressure peak of 1800-2000 p.s.i., and thus will not be harmed by stones or tramp iron in the load.

The simplicity of the design has permitted an all-welded structure with few moving parts. Low initial cost, limited maintenance and considerable fuel savings mean that one or several units can be installed, giving flexibility of operation for high or low production rates.

A waste disposal problem produced the Cowan bark press



Now is the time to discuss bark pressing. Your letter, phone call or wire will get prompt action.

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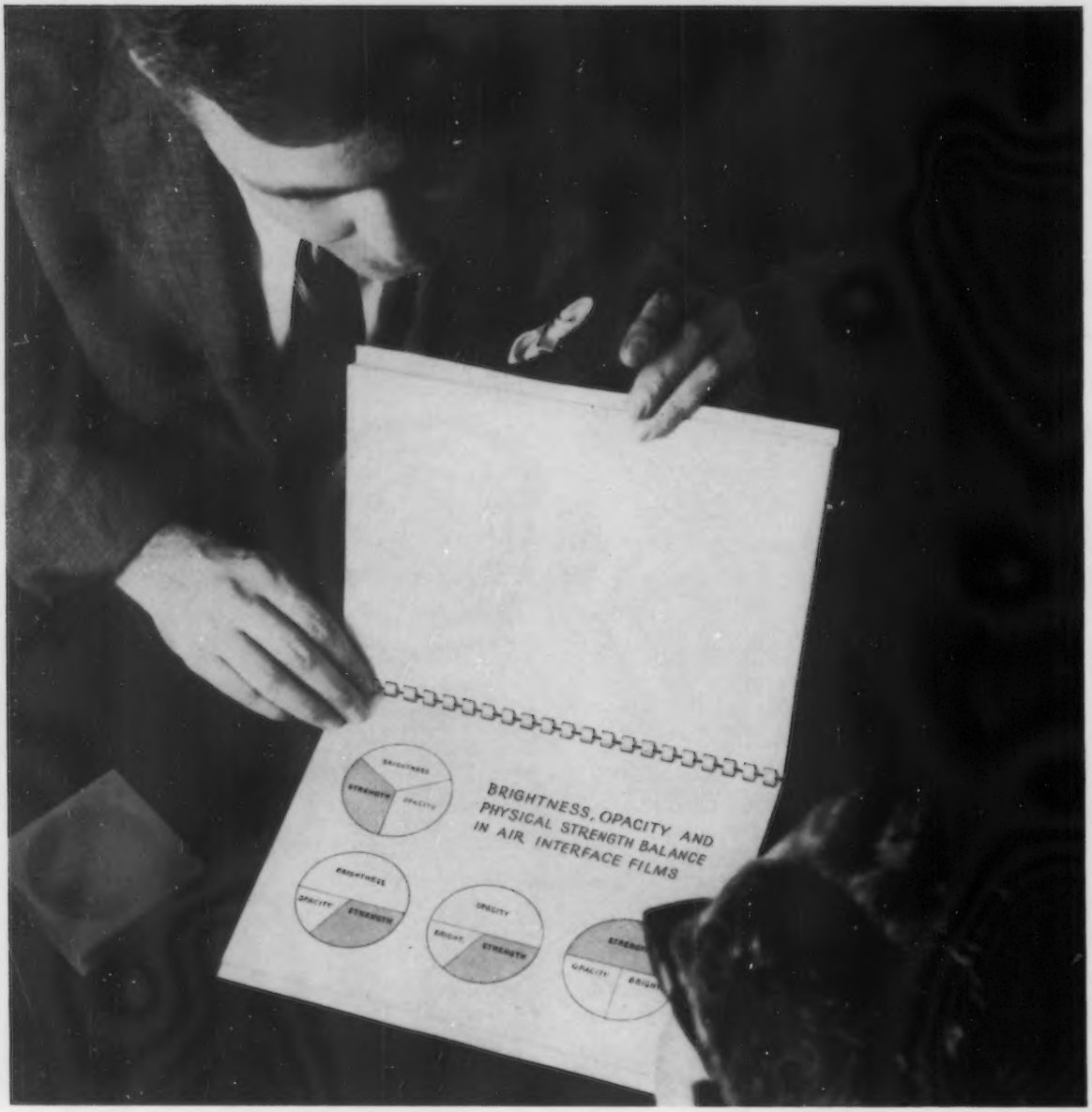

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Regardless of the pressure of business, Black-Clawson, with its multi-plant production facilities and manufacturing know-how, can make the best delivery schedule in the Industry.

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PAPER MACHINE DIVISION
Watertown, New York
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BLACK-CLAWSON

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Disston's rugged, long running, high nickel content alloy steel bands can take it! They are manufactured with the most modern equipment and techniques. For example: the welds are made by the latest Heliarc method to give the toughest joint possible; breaking at the weld is eliminated. That's why Disston can guarantee the welded joint to be as strong as any part of the band. Such skill in every phase of production makes Disston bands tough enough to resist the strain of fast-feed cuts and constant flexing over wheels at high speeds while maintaining excellent edge holding qualities.

Not satisfied with the performance of your present bands? Next time specify Disston band saws—they really have the edge!

For further information, write to Disston, H. K. Porter Building, Pittsburgh, Pa.

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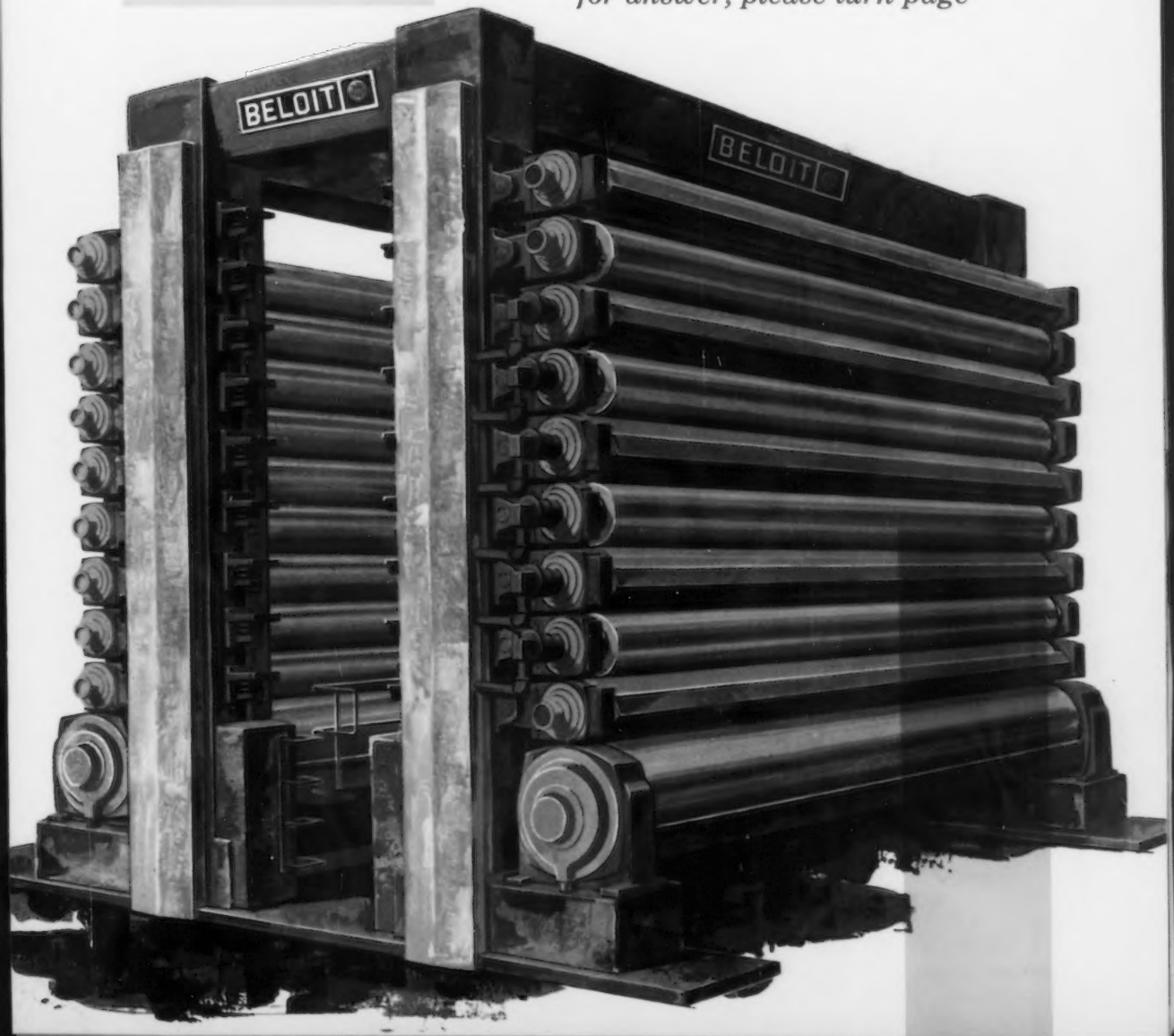
and advantages
does the new

BELOIT CALENDER

design bring
to papermaking?

for answer, please turn page



BELOIT CALENDERS

...new concept provides more efficient and economical operation

The new Beloit Calender shown here represents a major breakthrough in calender design and gives promise of greatly increased operating efficiency. Every feature of this new-type machine calender reflects rugged dependability, operator convenience, and ease of operation. Location of roll-lift mechanism in the base eliminates the necessity for service ladders and footwalks, and substantially lowers the over-all calender height. Other important features:

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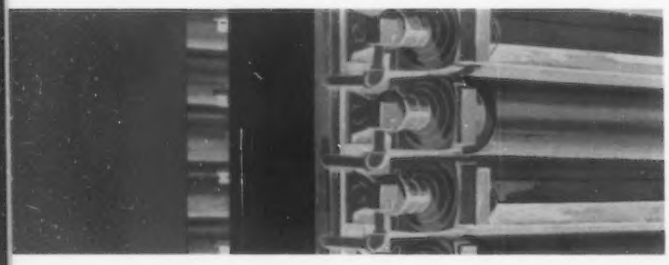
- direct air-cushioned loading and nip relieving
- rolls individually supported in raised position
- operating ease and accessibility.

Descriptive literature upon request.



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BELOIT

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your partner in papermaking

PHOTOGRAPHY BY GEORGE NORDHAUSEN

Checkmate forest fires

Fires ravage about five million acres
of woodland and range annually in the United States.
Prevention is everybody's job!

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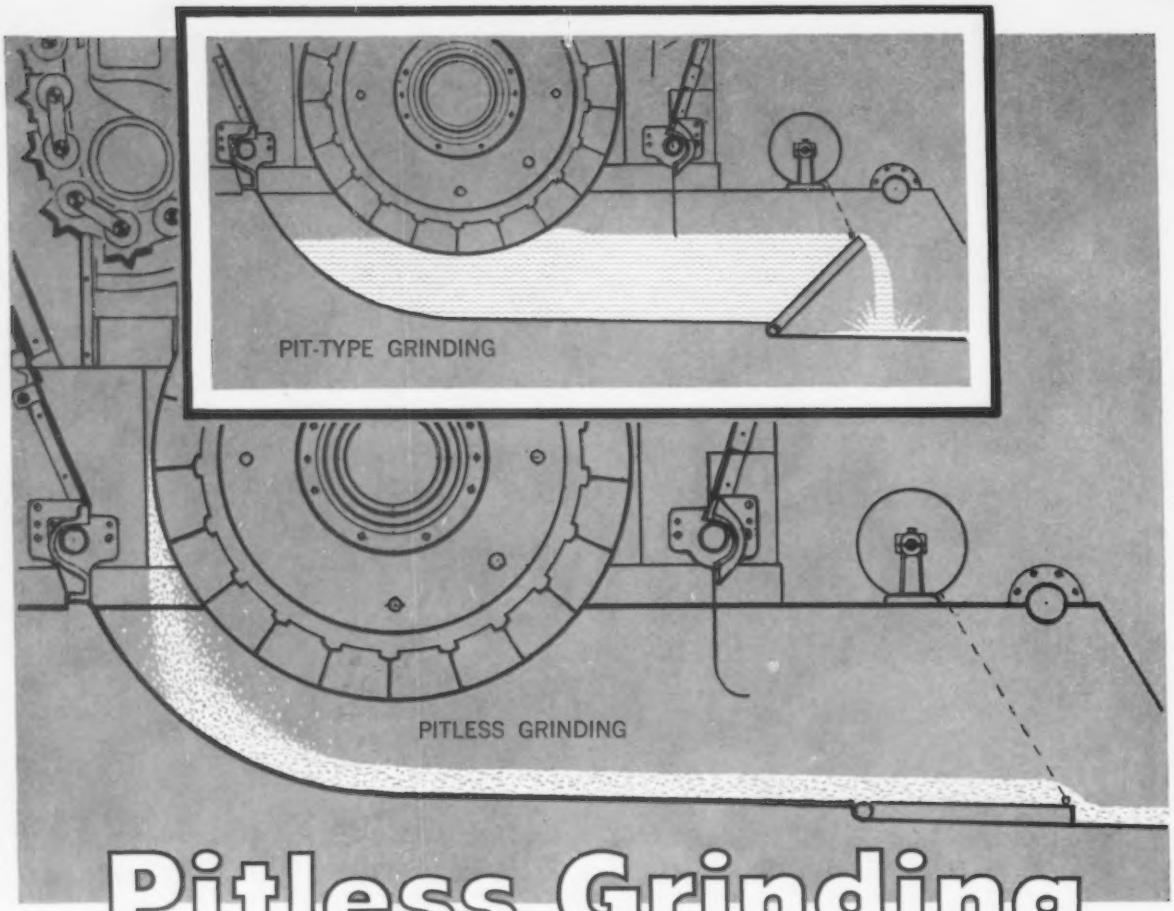

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Mills report:

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- **Longer stone life**
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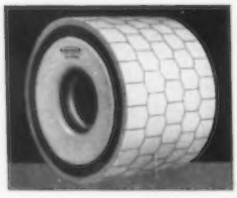

From the beginning, Norton pulpstone engineers have been associated in the development of pitless grinding. They are familiar with the technique and will show you how your present equipment can be adapted to this more efficient, more profitable method. Call Worcester, SWift 8-2511, or Hamilton, LIberty 4-3321.

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Trends

Paperboard Mills Still Running Ahead of Paper

Paperboard mills operating rates continued to out-strip those of the paper mills in the first half of October, 97% versus 93%.

Folding Box Shipments Off But Orders Up

Shipments of folding cartons edged down in September, it was announced by the Folding Paper Box Assn. Dollar volume of shipments dipped 2.8% below September 1960 and tonnage was also off 2.8% for the same period. Volume for nine months this year is 1.1% below 1960, while tonnage of shipments trails last year by 1.2%. New orders placed in September, however, were running 4.5% over the dollar volume and 5.4% ahead of the tonnage of bookings reported in September 1960.

That Same Old Tune—But Still True

Another financial expert looks at our industry problems in an article beginning on page 36. The article states that "There has been an excellent growth in sales, tonnage and assets, but a very poor earnings performance. From the point of view of the outside shareholder, the paper industry has done only a mediocre to barely adequate job—particularly over the last four years." The author indicates that most of the problem lies in costing and prices.

Future of Paper-Plastics Combinations Reviewed

The future of paper-plastic combinations was one of the principal topics discussed at the conference reported in this issue beginning on page 26. Looked at realistically there is a limited but growing market for these combinations. We don't yet foresee the day when plastics will be of importance in the manufacture of mass production grades such as, newsprint, book and magazine papers, etc. There is room for much growth in the use of plastics on corrugated shipping containers but on the other hand the bulk of the present uses for these offer no advantages for plastic application. In other words, while the potentials for application of plastics to paper for improved and new issues represents a very substantial market, it will not revolutionize the paper industry. In the foreseeable future, most grades of paper and board will be produced without the application of plastics. The still limited interest of the industry in the subject is reflected in the fact that the majority of those registered at the paper-plastics conference were from the supplier—not the paper industry.

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- Output approximately 3 tons per hour

The Water Extractor is manufactured in other sizes for capacities required

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PAPER TRADE JOURNAL
WEEK OF OCTOBER 23, 1961

Union Bag Offers Bids for Two Firms

Union Bag-Camp Paper Corp. has moved to diversify its holdings by offering to buy two firms.

An offer was made to purchase Doeskin Products, Inc., manufacturer of sanitary paper products, for $4,662,000. The company announced it also had made a bid to buy the Write-Right Manufacturing Corp. of Atlanta.

The Doeskin offer will be considered in New York City November 10 as ordered by Federal District Judge Edmund L. Palmieri of the Southern District of New York.

Doeskin and its subsidiaries, which manufacture such items as toilet tissue and napkins, have been operating since December 3, 1960, under the jurisdiction of two fiscal agents appointed by the Federal court.

Write-Right, founded in 1922, manufactures a broad line of paper writing tablets and paper pads. Its annual sales are approximately $2,000,000.

London Company to Sell Swaziland Pulp

A new company has been formed in London as a corporation to sell unbleached kraft pulp produced by Usutu Pulp Co., Ltd., Swaziland. Springwood Cellulose Co., Ltd., as the new concern is called, will also be responsible for selling that part of the Usutu output which is to be bleached at Courtaulds Aber works in North Wales.

Both types of pulp are for the paper and board manufacture and production of commercial quantities is expected during the latter part of this year. Stocks will be held at the Aber works and at other depots in Britain and Europe.

The project to produce unbleached kraft pulp was first announced in July 1959 when Usutu Pulp Co., Ltd., was formed jointly by the Colonial Development Corp. and Courtaulds to take over C.D.C's Usutu forests in Swaziland and to erect a pulp mill based on new techniques evolved by Courtaulds. The designed annual output of the mill is 100,000 tons, part of which will be bleached at Aber.

American Can Joins Akerlund & Rausing To Make Dixie Cups in Sweden

American Can Co. and Akerlund & Rausing, Swedish packaging manufacturer, formed a company in Sweden to make and sell American Can's Dixie Cup line in Europe.

The company, named AB Dixie, will be equally owned by the two concerns. AB Dixie plans to build an addition to an Akerlund & Rausing plant at Lund, in south Sweden. The new facility will manufacture the Dixie Cup line of cups and containers. Machinery for this purpose will be built by the Dixie Cup division in the U.S. and shipped to Sweden, an American Can spokesman said.

The plant's products will be marketed initially in Sweden but distribution is planned for other nations in Continental Europe.

Gunnar Brime, vice president of Akerlund & Rausing, was named president of the newly formed company.

Two officials of American Can were named directors. They are Wade Hampton, general manager of the international division of American Can, and Clarence L. Van Schaick, general manager of the Dixie Cup Division, and a vice president of American Can.

Canadian Keyes Starts Expansion

Canadian Keyes Fibre Co., has started a $650,000 expansion program at Hantsport, Nova Scotia.

New pulp molding machine and associated equipment have been ordered and will cost an estimated $400,000, R. A. Jodrey, president, said. A two-story plant addition, of about 50,000 sq. ft., will be built in 1962 at a cost of $250,000.

Canadian Keyes Fibre completed installation of a third automatic pulp molding machine earlier this year, marking completion of a three year, $1 million expansion and modernization program.

Firm is one of Canada's largest manufacturers of molded pulp products like egg trays and paper plates.

Canadian Keyes Fibre is affiliated with Minas Basin Pulp and Power Co. which owns and operates a 105 t.p.d. groundwood pulp and 50 t.p.d. paperboard mill in Hantsport. Minas supplies all of Keyes Fibre groundwood requirements for the plant located adjacent to the Minas mill.

Paper and Paperboard Production

The American Paper and Pulp Association reported the ratio of the United States paper production to mill capacity for the week ending October 7, 1961, at 92.0 per cent, compared with 94.8 per cent, revised, for the preceding week. The ratio was 93.6 per cent for the corresponding week a year ago.

The National Paperboard Association reported the paperboard production ratio for the week ending October 7, 1961, at 97 per cent, compared with 98 per cent for the preceding week and 92 per cent for the corresponding week a year ago.
(Detailed Statistics on page 56)

Container Corp. Constructing Folding Carton Plant at Carol Stream, Ill.

Construction on one of the world's largest folding carton plants is now under way at Carol Stream, Ill., a western suburb of Chicago, Leo H. Schoenhofen, president of Container Corp. of America, announced.

The 350,000-square foot plant, to be located on a 30-acre site, is designed to handle the folding carton operations carried on since the late twenties at Container corporation's West 35th Street facility in Chicago. The company hopes to begin operations at the Carol Stream plant by the end of 1962, with approximately 400 employes.

In addition to the production unit, the Carol Stream facility will include a two-story, 36,000-square-foot office building housing the sales and administrative staff and the company's central Design Laboratory and Packaging Museum.

The Carol Stream folding carton plant will be a one-floor, structural steel frame building with wall structure of white precast, prestressed concrete panels. It will be windowless and air-conditioned. The air conditioning will provide controlled conditions for the printing of high quality, multicolor folding cartons on the latest types of printing presses.

"A vigorous industrial complex is growing very rapidly west of Chicago," Mr. Schoenhofen said, "and Container is looking forward to being a part of this important development.

The Packaging Museum—organized by Albert Kner, director of Container's design laboratories—is the only institution of its kind in the country. It offers a comprehensive view of the development of packaging, with exhibits of U. S. packaging dating back to the beginning of the 19th century.

The design laboratory's research department at Carol Stream will continue operation of its Park Forest, Ill., field office as a center for consumer surveys and marketing and merchandising studies.

Architects for the Carol Stream plant are Skidmore, Owings and Merrill, Chicago. Torwald Torgersen, corporate architect for Container Corporation, is coordinator of all architectural and construction details. Ragnar Benson, Inc., Chicago, is general contractor.

Container Corporation's domestic operations currently include 71 production facilities, in 48 cities, in 23 states. Outside the U. S., the company maintains 43 production units in 27 cities of seven countries in Latin America and Western Europe.

In addition to the 35th Street plant that will be moved to Carol Stream, Container Corporation's continuing operations in the Chicago area include—the company's main office; the Park Forest field office; the Ogden Avenue, Chicago, corrugated and solid fiber shipping container plant, also headquarters for the display division; the Lake Shore, Chicago, folding carton and plastic packaging plant, and the corrugated container plant at Dolton, Ill.

Construction on Alberta Newsprint Plant Starts

Construction of a $38 million newsprint plant at Whitecourt, Alta., has begun, according to announcement by Gordon D. McNab, president of Alberta West Newsprint Mills, Ltd. Mr. McNab said H. K. Ferguson Co., of Cleveland, has been awarded the general contract. He said production of newsprint, expected to reach 300 tons a day, would begin "within 22 months."

Transportation and the Paper Industry

Present-day problems of American railroads are also problems for Kimberly-Clark employes, said W. L. Thornton, general traffic manager for the corporation, in an article in the current issue of *Cooperation*, the company's employe magazine. Transportation is the final link in the "production line" between the company and its customers, without which none of the preceding work would be of value, and 85 per cent of this transportation is by rail.

The article takes the form of an interview on the subject of transportation. The latter involves an annual expenditure of some $50 million among Kimberly-Clark, its subsidiaries and affiliates. Of this, 85 per cent goes to railroads and thus the company is bound to feel some effects of the present-day troubles experienced by rail carriers.

While other forms of transportation are necessary, railroads haul the bulky raw materials and the long-haul shipments of most finished product. Among the bulky raw material items are pulpwood, sulphur, clay, chlorine, salt cake and coal.

Describing the size of the job railroads do for Kimberly-Clark, Mr. Thornton said that rail freight shipments last year came to 131,251 carloads, which if put into one train, would stretch from Chicago to Las Vegas. In addition to this, Kimberly-Clark paid $5¾ million to motor carriers, and other large amounts for water transportation, for rail and air express, and for passenger transportation.

He said that the company benefits from and favors healthy competition in the transportation industry, and indicated that the railroads are hampered through regulation and legislation from exercising sound judgment in solving some management problems that confront it.

Despite these hampering regulations, railroads are working out new and progressive methods of freight handling, such as truck-rail "piggyback" service, electronic controls of freight traffic, electronic inspection of equipment, and new types of car underframes that permit up to twice the conventional loads now hauled. He cited also as helpful the mergers that are eliminating duplicate and overlapping services.

PAPER PEOPLE

A. C. Price

T. R. Moore

Price Brothers Appoints Executives

Price Brothers & Co., Ltd., announces that A. C. Price, who has been president of the company since 1948, was appointed chairman of the board.

At the same meeting T. Ross Moore, president of the Anglo-Newfoundland Development Co. since 1958, was appointed president.

It will be recalled that earlier this year, Associated Newspapers, Ltd., the owner of the London Daily Mail, the Evening News and a large chain of newspapers in England, exchanged, on the basis of 11 ordinary shares of Anglo-Newfoundland Development Co., for two common shares of Price Brothers, the whole of its majority holdings of the shares of Anglo-Newfoundland Development Co., thereby becoming a major shareholder of Price Brothers.

The merging of all of the resources and the consolidation of ownership and management of Price Brothers & Co., Anglo-Newfoundland Development Co. and Gaspesia Pulp and Paper Co. into one group makes it one of the largest producers of newprint and pulp products in the World.

C-Z Announces Staff Changes at Camas

Crown Zellerbach Corp., has announced two additions to the Chemical Products Division staff at Camas, Wash.

Robert H. Gaps has been named a sales representative. He joined Crown Zellerbach in July 1959 as an assistant chemist at the company's Central Research division, Camas.

Donald M. Blow, an associate chemical engineer at the company's Central Research division since November 1960, has been appointed research chemical engineer, Chemical Products Division.

Also announced were staff changes in the C-Z Central Research Division.

Dr. J. Frank Gillespie has been promoted from research chemist to supervisor of monomer research. He joined Crown Zellerbach in March 1960.

Dr. Gillespie obtained his B.S. degree in chemistry from the University of Alberta, his Ph.D. in organic chemistry from the University of Notre Dame, and a Post-Doctorate in theoretical chemistry from the University of Chicago.

Dr. Ralph Myers has been named research chemist in the division's Printing Paper Grades development group. He received his Ph.D. in physical chemistry from the University of Nebraska.

Gleeson Joins Cons. Paper As Purchasing Director

Consolidated Paper Co. has announced that James T. Gleeson will be its new director of purchases. Mr. Gleeson was general purchasing agent of the National Gypsum Co., Buffalo, N. Y.

Mr. Gleeson joined Atlantic Gypsum Co. at its Bronx plant on April 18, 1933. In 1936 National Gypsum acquired Atlantic Gypsum and Mr. Gleeson entered the National Gypsum organization. In 1946, he was promoted to purchasing agent and transferred to Garwood, N. J., to supervise the purchasing for the company's Garwood, N. J., and Newburgh, N. Y., plants.

One year later, Mr. Gleeson was brought to National's Buffalo headquarters as buyer. In 1948, Mr. Gleeson was promoted to assistant director of purchases and in 1950, was elevated to general purchasing agent for National Gypsum.

M. J. Desiderio

Desiderio Elevated to V-P At Whippany Paper Board

Whippany Paper Board Co., Inc., Whippany, N. J., announced the appointment of Michael J. Desiderio to the post of vice president of the company at a recent meeting of the board of directors.

A director himself, Mr. Desiderio formerly served the firm as assistant treasurer. As vice president of the company, he will continue to serve in the sales and service area of the business in addition to his new administrative duties.

Mr. Desiderio is a graduate of the University of Pennsylvania's Wharton School of Finance.

Whippany Paper Board Co., Inc., with five mills in the Middle Atlantic states, is one of the country's largest non-integrated manufacturers of paperboard and paperboard products.

F. W. Hoover, Jr.

Robert Vanne

J. R. Parkinson

Hoover Named Assistant to Continental Can President

Fred W. Hoover, Jr., has joined Continental Can Co. in the capacity of assistant to the president, Thomas C. Fogarty.

Mr. Hoover was previously senior vice president of Langendorf United Bakeries, a bakery chain located on the West Coast. Before that, he was associated with the Carnation Co. for 21 years, his last position in that organization being president of its Albers Milling subsidiary.

Mr. Hoover has had 23 years of diversified experience, principally in the field of processing and marketing of food products.

Hart Joins Oxford As CD Director

Oxford Paper Co. has appointed Robert T. Hart director of commercial development. Dr. Hart brings to Oxford Paper a distinguished background of scientific achievement in the academic, military, and industrial fields of development.

His academic experience includes teaching posts at New Hampshire, Ohio State, and the University of Maine. During this period he published many scientific papers in the field of synthetic organic chemistry and also performed research for the Office of Naval Research. During World War II he was in charge of the Army R. & D. laboratory in Hawaii.

Prior to founding the Gorham Laboratories in 1956, Dr. Hart was assistant director of research for the S. D. Warren Co.

In his new position with Oxford, Dr. Hart will report to Harold M. Annis, vice president, research and development. He will continue for the present to reside in Portland, Maine, but will be spending a large proportion of his time at the company's mills.

Gilbert Appoints Vanne Sales Representative

Gilbert Paper Co. has announced the appointment of Robert Vanne as sales representative covering sections of the Middle West and Southern States. Mr. Vanne will headquarter at the mill general offices in Menasha, Wis.

Prior to joining Gilbert, Mr. Vanne was in paper merchant sales associated with West Coast merchants.

C. R. Tittemore

Tittemore Advances to General Manager at A.N.D.

Anglo-Newfoundland Development Co., Ltd., Grand Falls, Nfld., has appointed Charles R. Tittemore general manager. He joined the Anglo-Newfoundland organization in 1947 as control superintendent with Gaspesia Pulp & Paper Co., Chandler, Quebec.

In 1955 Mr. Tittemore was transferred to Anglo-Newfoundland Development Co., as assistant general superintendent and served as general superintendent, mill manager and assistant general manager.

Born in Regina, Saskatchewan, in 1921, he attended the University of Saskatchewan from 1938 to 1942, graduating with the degree of B.S. in chemical engineering.

Fiber Research Chooses Director

Fiber Research Corp., Seattle, Wash., has announced that its directorship, a post left vacant since June by the death of Edgar G. Putnam, former director and founder, was filled starting October 1 by John R. Parkinson of Walla Walla, Wash.

Dr. Parkinson, formerly technical director of the Boise Cascade Corp., brings to Fiber Research a wide experience in pulp and paper manufacturing and research activity. His background includes degrees in chemical engineering from Ohio State University and graduation from the Institute of Paper Chemistry at Appleton, Wis.

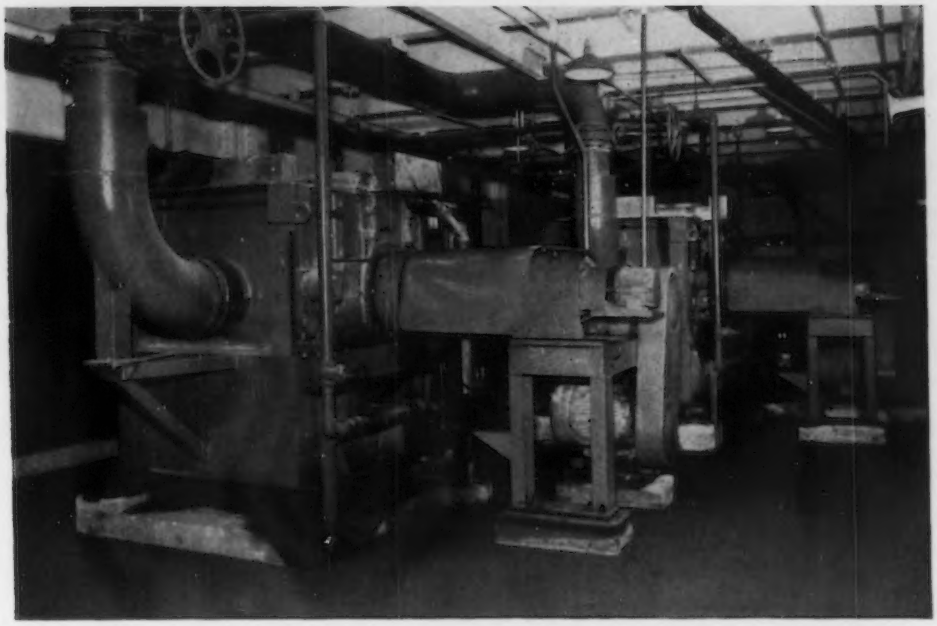
Projects currently under way at Fiber Research include continuous digestion studies, high yield pulping of Douglas fir, methods of bleaching without strength or weight loss, and the development of hardboard from rope and waste.

Murray of St. Regis Retires; Sloan Takes Over

Edward G. Murray, vice president in charge of sales for the Printing Paper Division of St. Regis Paper Co., will retire, effective November 1. He will continue to serve on a consulting basis.

Mr. Murray has been with St. Regis since 1931. He has served in various sales posts and was elected a vice president in 1947. He has served as president of the Groundwood Paper Manufacturers Ass'n. and as a member of the Executive Committee of the Book Paper Ass'n. He also served on the O.P.A. and O.P.S. Paper Advisory Boards during World War II.

Hugh W. Sloan, vice president, will assume the responsibilities as the administrative head of sales of the division.



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through fine-slotted plates
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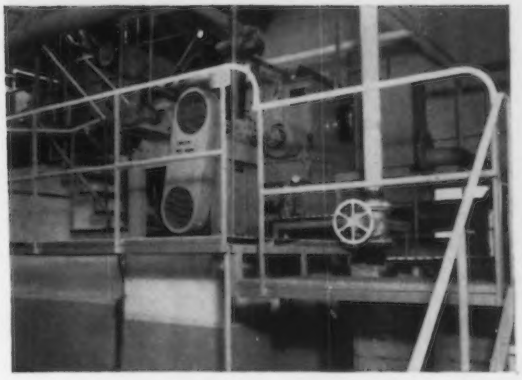

for example:

75 tpd of *unbleached sulphate* at 1.7% thru .014″ slots
80 plus tpd of *bleached sulphate* at 1.9% thru .012″ slots
65 tpd of *unbleached sulphite* at 1.6% thru .014″ slots
57 tpd of *bleached sulphite* at 1.7% thru .010″ slots
150 tpd of *semi-chemical* at 1.6% thru .035″ slots
110 tpd of *board filler* at 2.0% thru .020″ slots
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PJT NEWS OF CONVERTERS

Sonoco Products Acquires Canadian Firm

C. W. Coker, president of Sonoco Products Co., has announced the acquisition of Industrial Steel & Fibre, Ltd., through its subsidiary, Sonoco Products Co. of Canada, Ltd. Industrial Steel & Fibre operates plants at Terrebonne, Quebec and Toronto, Ontario. Industrial Steel & Fibre was established in 1941. The company manufactures spirally wound tubes and cores, tubes for the construction industry, cylindrical shipping containers and a complete range of fiber drums and composit containers.

Plans are also under way for a $250,000 expansion of the Canadian company's facilities in Brantford, Ontario. These funds will be principally used for added production for its cylinder paper machine and other equipment.

Sonoco Products Co. of Canada was established in Brantford, Ontario, in 1933, and in 1945 established a second plant in Granby, Quebec.

Schmidt Joins Weyerhaeuser As Cedar Rapids Plant Mgr.

Carl A. Schmidt, Jr., has been appointed plant manager of Weyerhaeuser Co.'s Cedar Rapids shipping container plant.

Mr. Schmidt, recently served as plant superintendent of the Hoerner Boxes, Inc., plant at Tupelo, Miss. He is a graduate of State University of Iowa and was a naval officer in World War II.

Miller Joins Avisco Film Sales

Ray N. Miller has joined the Atlanta district sales office of American Viscose Corp. Film Division.

Mr. Miller will be the Avisco cellophane sales representative in southern Virginia, northern North Carolina, and the northeast corner of Tennessee. Prior to joining American Viscose, Mr. Miller was a salesman for General Mills, Inc.

Kelly Promoted By Mead Container

Robert J. Kelly, who for the past five years has served as labor relations representative for the Mead Corp., Dayton, Ohio, has been promoted to manager of industrial relations of the Mead Container Corp. He is a graduate in industrial relations and management from Ohio State University and is a native of Springfield, Ohio.

Specialty Papers Announces Managerial Changes

In a series of recent changes designed to strengthen the organization of the Specialty Papers Co., Dayton, Ohio, Edward A. Greer was named vice president, marketing.

At the same time, David K. Evans was promoted to the position of sales manager. Mr. Evans will have direct charge of field salesmen and field selling.

Donald E. Irvin, as technical director, was placed in charge of all printing, and William J. Trimbach becomes converting manager. Alexander B. Beal continues as manager, polyethylene extrusion department. All three of the foregoing report to Robert R. Eliker, vice president, manufacturing.

A. M. Brisbois

RAP Industries Appoints Board Member

The Rap-In-Wax Co., which has just officially changed its name to RAP Industries, Inc., has announced the appointment of A. M. Brisbois to its board of directors.

Mr. Brisbois is president of Food Corp. of America, a holding company for food processing companies; executive vice president of Pik Quik, Inc., a Florida-based bantam supermarket chain; executive vice president of The Plymouth Rock Provision Co. of New York City. He has been sales director of the Home Products Division of RAP Industries for the last two years, and will continue to direct these efforts.

"That's right, son. No other mill has developed it yet, but who's going to buy corrugated writing paper?"

Durasorb

Needled Felts

Pioneering in the challenging area of needled felt research and development has been continuous since 1955 with Albany Felt Company.

Design, research and field work on applications of this needled Durasorb construction for every type of asbestos-cement, paper and board production is being successfully accomplished.

This leadership in the needled felt field has necessitated careful and painstaking attention to *specific* paper mill production objectives. The results of such attention have been good, especially on multi-cylinder board machines.

While experience has shown that needled felts do not meet every papermaker's need, in many instances dramatically better finish, improved drainage or longer felt life have resulted.

Albany Felt Sales Engineers, with your help, can determine how Durasorbs can best serve you. Careful analysis of your needs, plus the expert assistance of our design and production specialists, will help you obtain *improved efficiency, better quality,* and *increased production.*

TALK *Durasorb* NEEDLED FELTS
WITH YOUR ALBANY FELT SALES ENGINEER

ALBANY FELT COMPANY
ALBANY, N.Y.

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Dedicated to Paper Industry Progress

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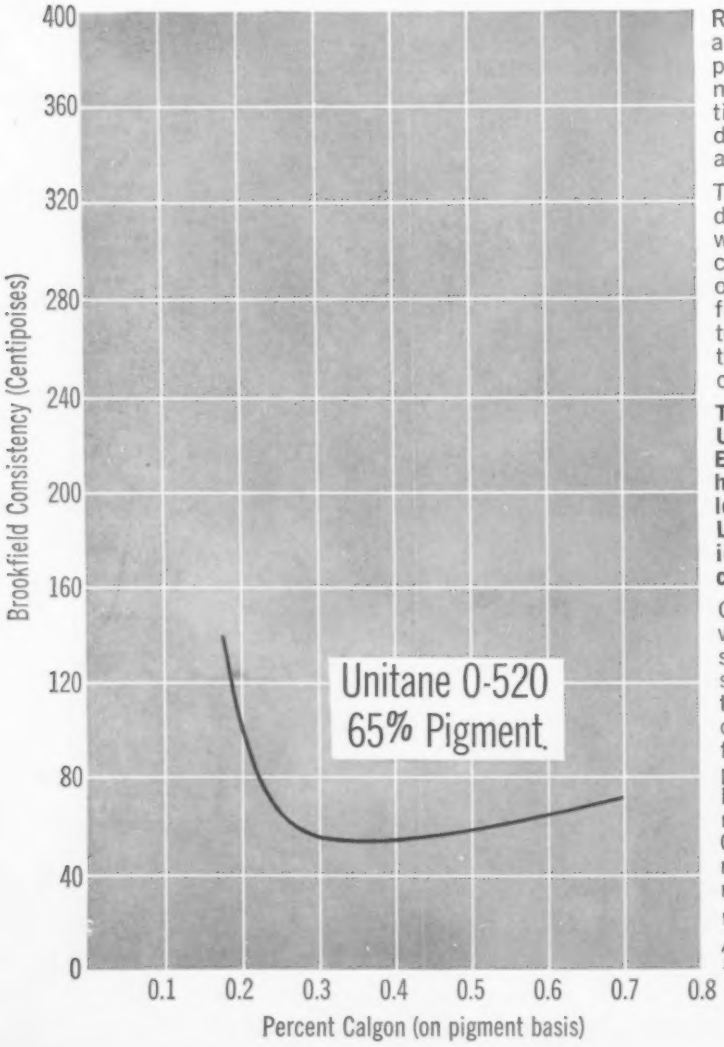
Cowansville, Quebec Cuautitlan, Mexico

smoother, more economical paper coatings assured with new Unitane® 0-520



Recognizing the trend toward smoother and more economical paper coatings employing relatively mild dispersion techniques, Cyanamid has produced a new titanium dioxide pigment, Unitane 0-520 designed especially to meet the most exacting requirements of the paper coater.

The curve illustrates the low dispersant demand and low viscosity of coatings made with Unitane 0-520. The very slight increase in viscosity with increasing amounts of dispersant gives the coating formulator flexibility of formulation. It enables him to control deflocculation and to sequester the polyvalent ions from hard water, calcium carbonate and other fillers.

These desirable features are found in Unitane 0-520:
Easy to disperse — excellent response to high speed equipment • Low consistency — low water demand • High pigment loading • Low abrasion factor • Extremely low residue (325 screen) — promotes smoother coatings

Comparisons with Unitane 0-110, a type well-known in the paper industry, have shown that the new Unitane 0-520 has the same good opacity in all coating applications. A comprehensive report of the tests on Unitane 0-520 and the currently offered paper coatings types has been prepared and is available from your Cyanamid Pigments representative. Why not call him now and let him show you how Unitane 0-520 can give you smoother, more economical coatings. A generous sample is ready for your tests. *Whiter and Brighter with Unitane* CYANAMID

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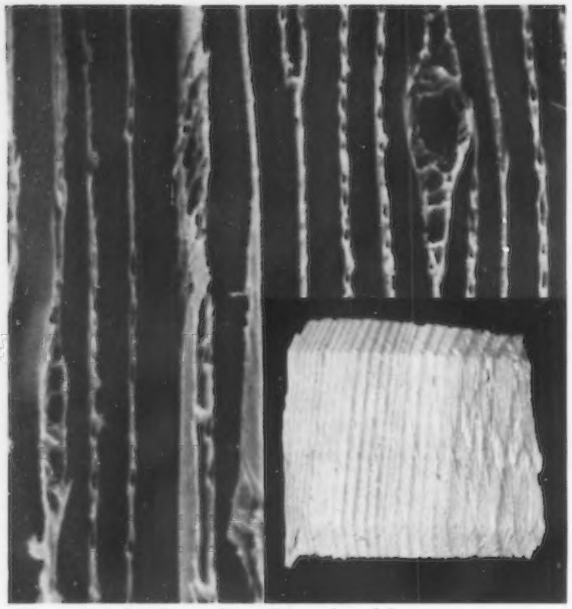
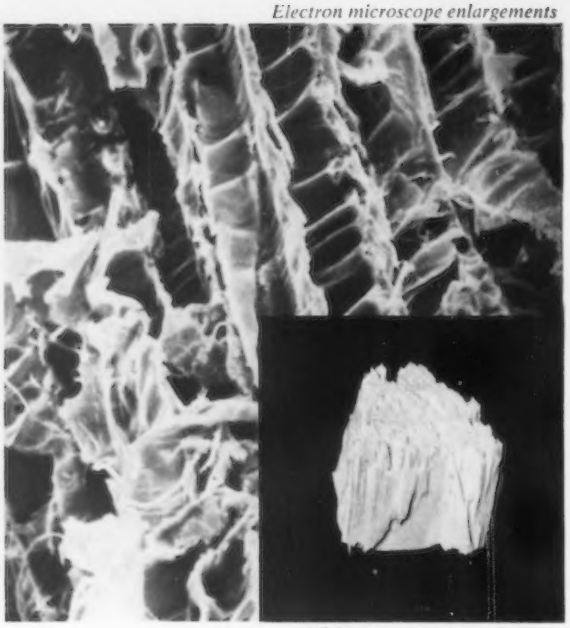


New Anglo-Canadian Wonderchip



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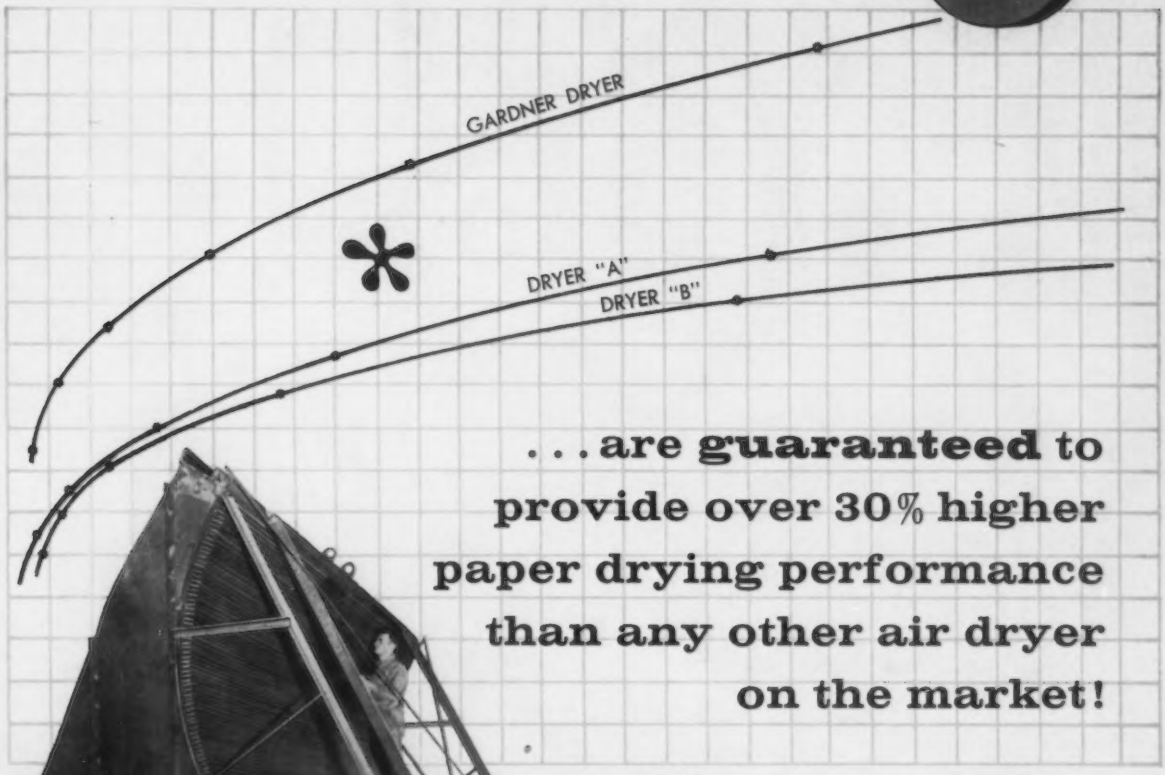

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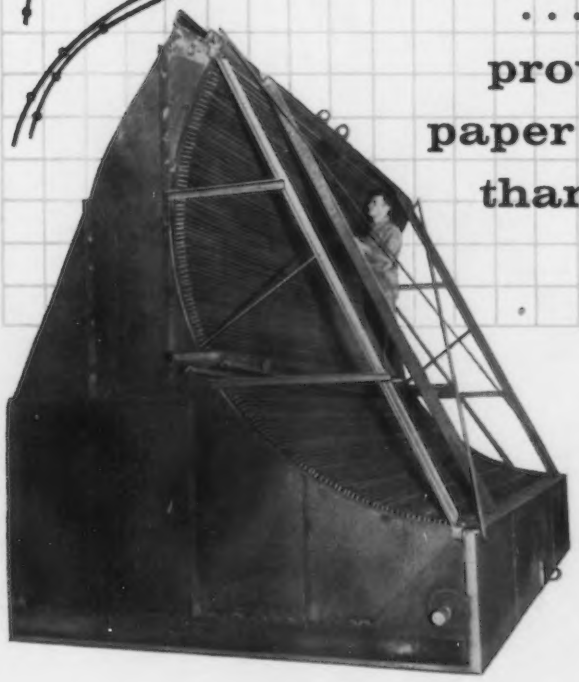

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Increased Production — higher efficiency permits higher operating speeds.

Improved Product Quality — lower impingement pressure is more gentle with wet web surface, exclusive Gardner slotted nozzle design insures less moisture variation across the web.

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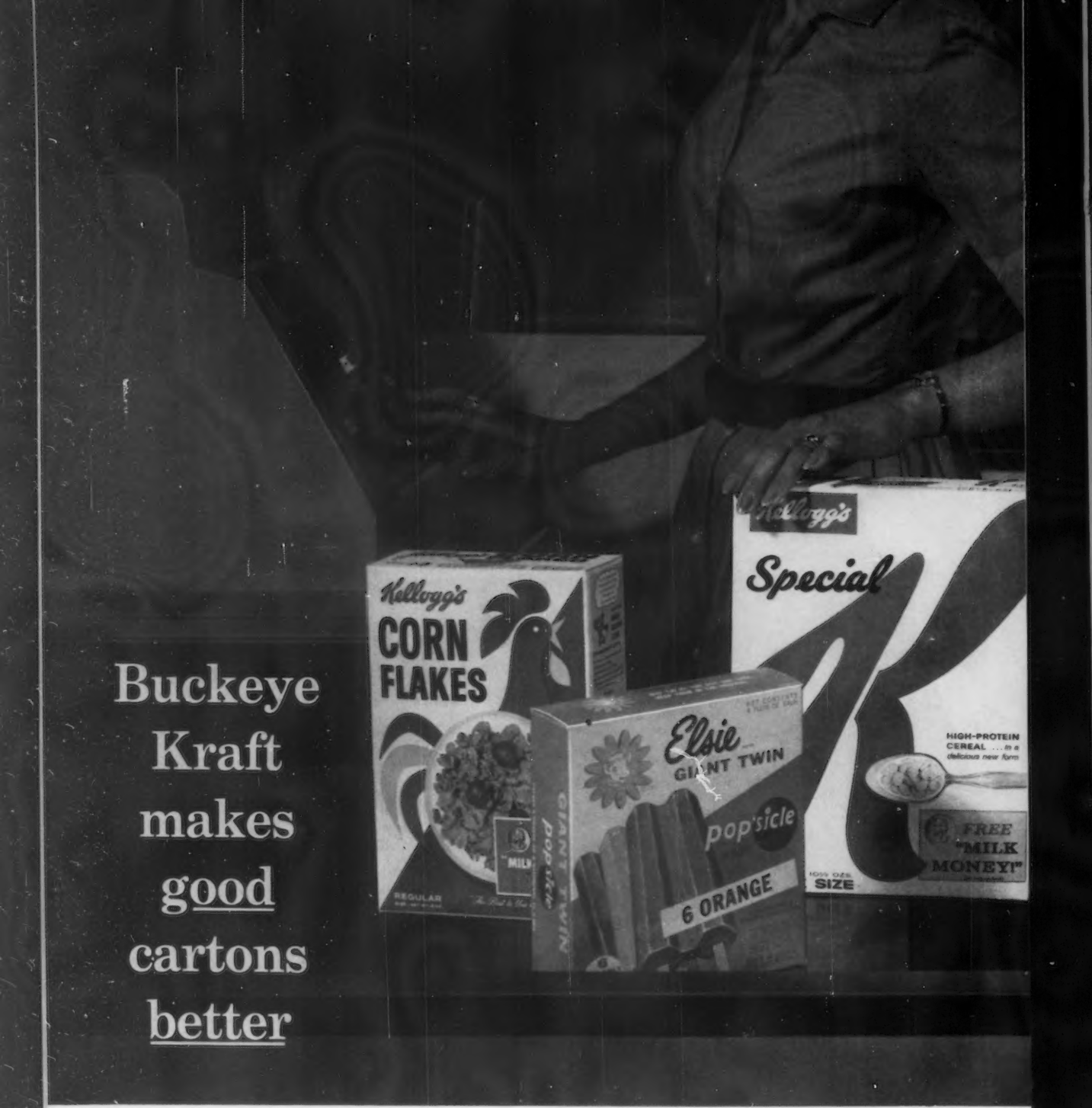

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Cartons have an extra "reach for me" sparkle when they're made with bright, clean Buckeye Kraft. The high levels of brightness and cleanliness that characterize Buckeye Kraft are the results of two unique processes developed in the Buckeye Research Laboratories. Gradual eight-stage bleaching produces krafts of high brightness without impairing fiber strength. An unusual combination of vibrating and centrifugal screens insures maximum cleanliness. These innovations, plus our years of experience in pulp research and production, enable us to offer you highest quality kraft at lowest cost. If you'd like more specific information about the qualities that bright, clean Buckeye Kraft can add to your paperboard or other paper products, call or write us today.

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The forty-three sections of this book represent the first effort anywhere to publish in one volume comprehensive coverage of the maintenance of most major equipment used by our industry. Each section deals with the problems of a specific type of equipment such as drum barkers, jordans, vacuum pumps, etc. The book, therefore, presents a completely different and more concrete approach than our previous publication (still available) "Pulp, Paper and Board Mill Maintenance" where the subject was discussed in the more general terms of: organization, planning, lubrication, and the specialized problems of each operating department.

Principal machinery covered in *"Maintenance of Pulp and Paper Mill Equipment"* includes:

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Lime Kilns
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Disk Refiners
Jordans
Conical Refiners
Centrifugal Pumps
Chemical Pumps
Vacuum Pumps
Centrifugal Screens
Paper Machine Screens
Fourdriniers
Rubber Rolls
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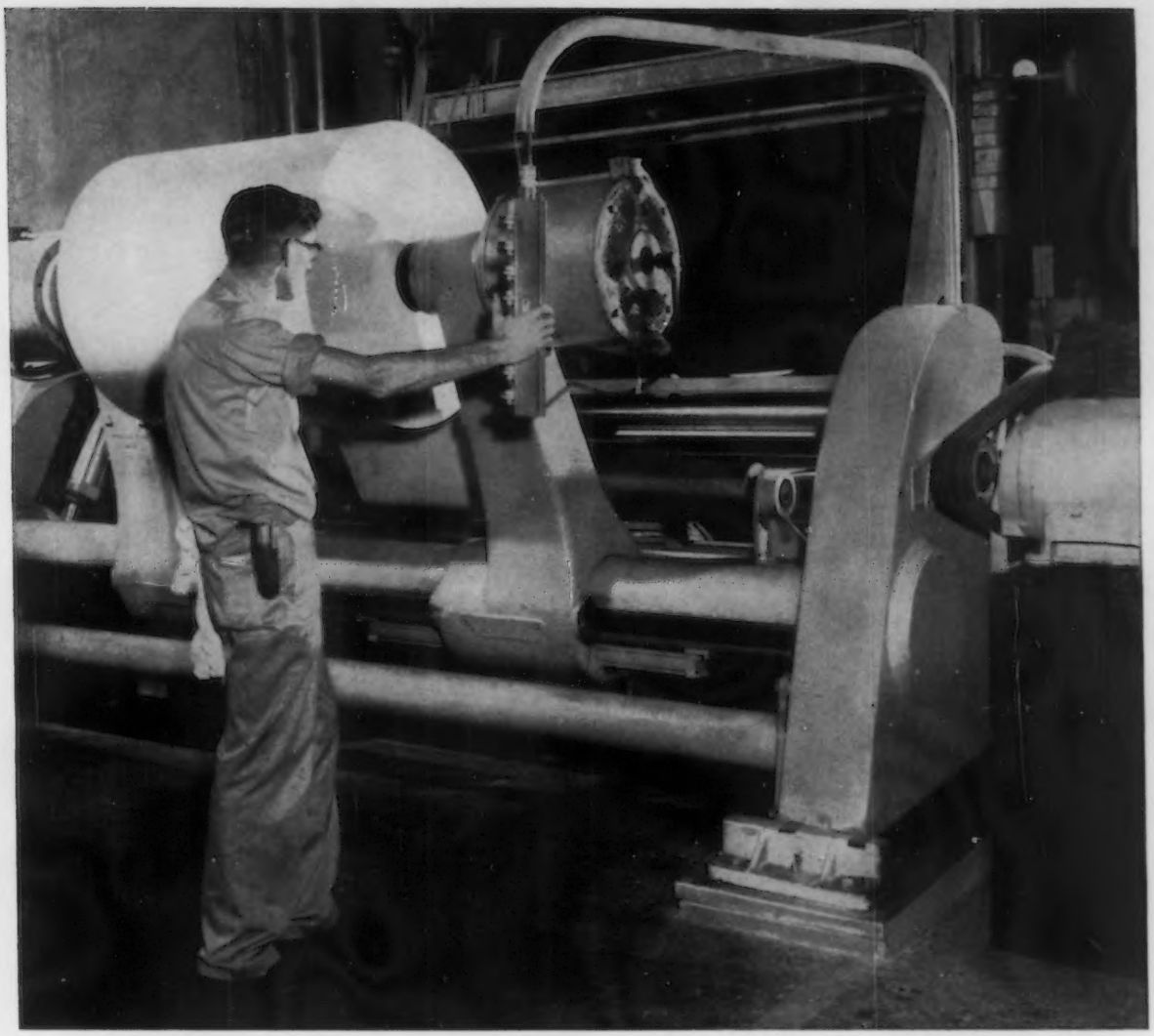

They threw out the unwind shaft and roll production jumped 50%

This is the magic of the Langston shaftless unwind stand. Put it in anywhere and right away you can get more production—and with actually less manpower.

Usually one operator can do everything—faster than two men with a shaft-type back stand. At Potlatch Forests, Inc., Lewiston, Idaho, for example, the operator can get a roll on the machine ready to unwind in about 60 seconds. All he does is maneuver the roll into position, push a button that closes the arms, another button to lift the roll into running position . . . and the job is done. No horsing a heavy shaft. No uncertain manual tightening of cones. No risk of slippage. Powerful hydraulic cylinders close the cones tight on the roll and hold them there automatically. He doesn't have to return rolls to the "broke beater" merely because of damaged cores or slow down the machine when unwinding out-of-round or narrow rolls.

Langston shaftless unwind stands can pick up rolls in diameters as small as 14 in. and as large as 84 in.—as narrow as 10 in. and as wide as 132 in. or more. Side register control, an optional extra, lets you unwind slipped (telescoped) rolls with a minimum of trim.

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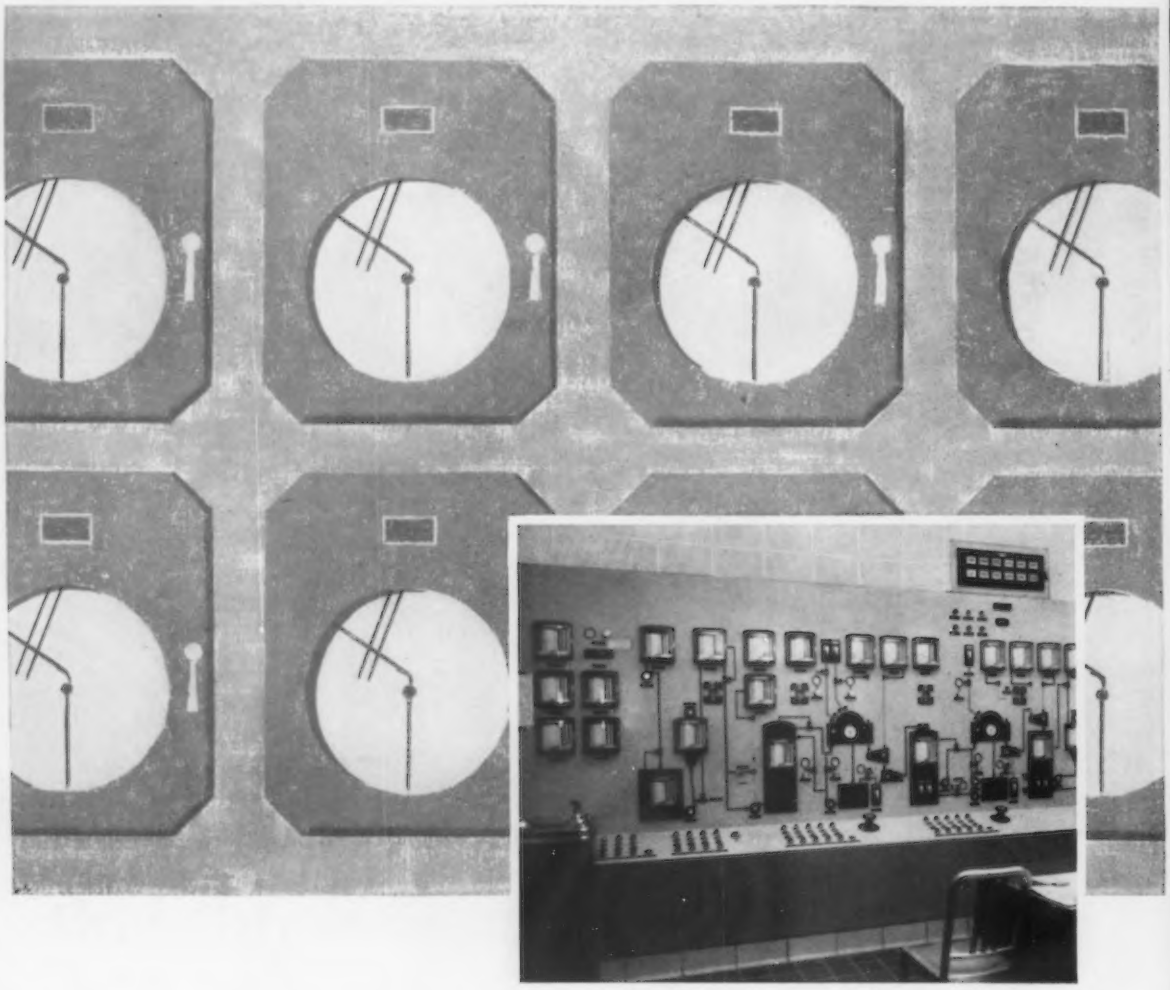

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- USE OF MINIATURE INSTRUMENTATION
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New Taylor "MAG-PIPE"* Magnetic Flowmeter Transmitter permits use of miniature instruments to $ave Panel $pace . . . and, for the first time, gives High-Accuracy Transmission over great distances . . .

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The "MAG-PIPE" sensing head is mounted in the flow line. It comprises a flow pipe, an AC magnetic circuit and two electrodes. Sensing head housing is "hose-down proof" (explosion-proofing optional), and has lapped joint (Van Stone type) flanges for easier installation.

The transmitter employs solid state components, being fully transistorized for long-term reliability. It is standard in fixed-range form, in which case calibration is factory set at the desired range. Optionally available with a full-scale vernier adjustment and a 2-position range switch to measure any range between 1 and 30 ft./sec. A built-in output meter doubles as circuit checking device.

• • •

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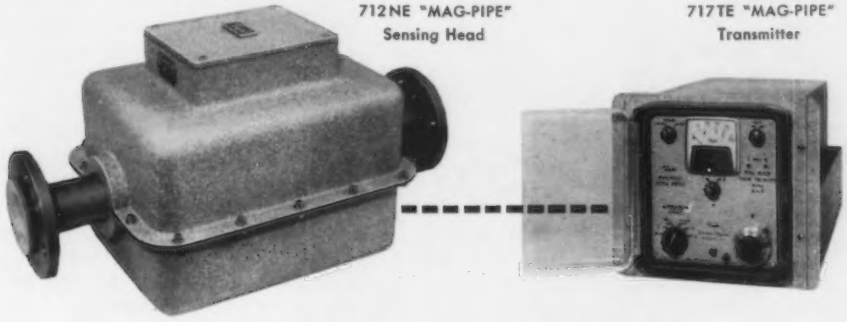

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• High accuracy—one-half percent of full scale on most ranges • Full scale velocities as low as ½ ft./sec. at only slightly reduced accuracy • Conductivity range—as low as distilled water • Rangeability—½ to 30 ft./sec. full scale calibration, continuous vernier adjustment • Amplifier—solid state • Output signal—1-5 ma DC into any load from 0-3000 ohms. (Electro-Pneumatic Transducer or TRANSCOPE Electronic Control System).

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MEAN ACCURACY FIRST

Big Future Indicated for Paper-Plastics Combinations

Continued growth and many new potential uses are predicted for addition of plastics in or onto paper.

Paul D. Van Derveer,
Associate Editor,
Paper Trade Journal

The oft-heard war cry that the paper industry must become more research-oriented was sounded again at the Plastics-Paper Conference in French Lick, Ind. Leading the chorus was Braze Golding, head of the School of Chemical Engineering at Purdue University, guest speaker at the annual banquet. He pointed out that paper companies are too conservative, that too many technical people are tied to routine tasks and that we must be willing to gamble.

According to Mr. Golding, paper has only one outstanding quality—that it provides more rigidity at lower cost than other materials. Unless paper can provide other physical or chemical properties its application appears limited. He mentioned that if paper manufacturers continue to compete in their usual fashion—by reducing prices —they will not make progress. A ray of hope peeped through his critical analysis, however—a wonderful future appears to be in store because so little has been done so far.

The plastics-paper program began with a warning from J. L. Clouse of Oxford Paper Co., speaking on plastic contaminants in deinking. The warning-plastics had the power to destroy the equivalent of thousands of acres of woods because of the difficulty of removing plastics contaminants from the 10 million tons of waste paper reused every year. His main point was that there must be closer cooperation between paper-plastics and deinking segments of the industry to fight "pernicious contraries" (as the British say).

Attendance at the conference was approximately 430. Sixteen technical papers and two panel discussions were heard during the three day affair. Discussions of the various paper follow.

Competition For Polyethylene

Results of the investigation of blends of various petroleum waxes and ethylene/vinyl acetate copolymers as flexible coatings on paper were described by S. T. Lamar, R. H. Beeman and E. P. Czerwin of E. I. duPont.

It was shown that coatings containing more than 25 per cent of ethylene/vinyl acetate copolymers and up to 75 per cent petroleum wax are completely flexible with excellent water vapor barrier, heat realing, gloss and anti-blocking properties. As a result these coatings may well offer stiff competition for extrusion polyethylene coated paper and board.

An outline of activities in the field of paper based expendable clothing by the Quartermaster Research and Engineering Command, U. S. Army was presented by D. G. Fox, G. A. Schrag, J. A. Murray and G. R. Thomas. A short film was shown of combat course testing procedures.

Wet strength of waxed corrugated board was the topic of D. S. Brown, Atlantic Refining Co. He discussed an underwater beam strength test in which the length of time a waxed specimen will support the weight is measured. The test is said to be easy to perform and sufficiently sensitive.

Various points of view in connection with the problem of containers under refrigeration were presented by A. C. Beardsell of Mead Corp. It was shown that it costs money to use an inadequate container. An analysis of factors affecting these costs was presented.

Data were presented by A. D. Galbraith of Riegel and E. A. Kitchen of Lehigh University to verify that permeability series evolved from gas transmission are applicable to liquid.

Panel discussions were held on the growing importance of man-made fibers to the paper industry and on the recovery of wet strength broke.

On Extruder Screws

Heating capacity limitations of extruder screws were discussed by B. H. Maddock, Union Carbide Plastics Corp. His paper treated the problems involved in achieving high stock temperatures for applications such as extrusion coating of paper or other substrates with polyethylene. It was shown that screws having extra long metering sections (½ to ⅔ of total threaded length) have proved advantageous. Output rates of 250 to 300 lbs./hr. at a stock temperature of 600°F. have been achieved in 2.5 inch machines with this type of screws.

Discussing the common market of corrugated and plastics, R. S. Smith of Olin Mathieson pointed out that the container industry began around the turn of the century as a very small industry making a very large profit, and now is a very large industry making a very small profit. He discussed the packaging characteristics of corrugated and plastics and the fact that they were complementary rather than competitive. For instance, corrugated provides strength, rigidity and economy while plastics provide barrier characteristics, cushioning and sealability. Some examples of specialized corrugated product developments were: linerboard with built in non skid surface, non-scuff linerboard, high wet strength construction and a new type of container construction where added strength is provided in selected areas.

Hidden by microphone at panel session is C. L. Hazleton, Blandy Paper Div., Hollingsworth & Vose; next is W. K. Saunders, Kimberly Stevens; D. G. Bannerman, E. I. du Pont; and H. A. Spencer, Knowlton Brothers.

Polyacrylamide as a Stock Additive

Two major roles for polyacrylamide in papermaking were discussed by William F. Linke, American Cyanamid Co.; one being its use as a dry strength additive, the other as a retention aid.

The hydrogen bonding capacity of polyacrylamide leads to exceptional performance as a dry strength additive. As a retention and drainage aid, the ability to prepare very high molecular weight products is very important. Both species of polymer are best retained in the presence of alum.

This class of polymers is an excellent example of a synthetic product whose properties can be modified at will. A knowledge of the mechanism of absorption and flocculation was used in recommending practical application procedures. In the development of the two products, each of the chemical and physical properties was studied with regard to ultimate performance.

Alfred Marzochhi, Owens Corning Fiber Glass; W. F. Reynolds, American Cyanamid; W. R. Wilson, American Viscose.

R. W. Willis, National Starch & Chemical Corp. and W. Sandowski, Joyce Research & Development Corp.

Curtain Coating Coming

The curtain coater seems to be coming more and more into the limelight these days.

There were two papers given on this type of coater during the conference. The first was given by W. Sandowski, Joyce Research and Development Corp., who discussed application and method of operation for curtain coaters. This method of applying coatings is particularly significant because it provides the first apparently practical method for coating sheeted stock, and therefore may allow the application of a much wider selection of coating materials.

Mr. Sandowski pointed out that the flow or curtain coater consists of a two section conveyor and a circulating system. Between the two conveyor sections which move at the same relative speed, a trough is inserted to collect unused coating material from the distributor head above. The circulating system consists of a reservoir for the coating material, a pump, and filters, as well as the collecting trough and distributor head. The coating falls in a uniform film curtain from the distributory head as the sheets pass underneath and are coated.

Two major factors determine the amount of coating applied, (1) speed of the conveyor and (2) quantity of coating flow. The most important aspect of speed regulation is uniformity and smoothness of the conveyor speed. In most cases speed is maintained between 200 and 300 f.p.m.

Although the curtain coater is relatively easy to operate and control, the chemist must concern him-

self with several factors in formulation of the coatings: viscosity, surface tension and thixotropy. The operator may control viscosity to some extent by changing the temperature. Another important condition for successful curtain coating is the maintenance of laminar flow. Thickness of the film deposited is dependent to some extent on width of the orifice opening in the distributor head. Another important factor is the pressure at the distributor head, which greatly affects the quantity of coating flow.

The curtain coater is said to be a most economical machine.

Curtain Coating with Polyvinylidene Chloride

A second paper dealing with the curtain coater was given by R. W. Willis of National Starch and Chemical Corp. He reported on a preliminary examination of the mechanical problems encountered in adapting a non pressure type curtain coater for the application of a polyvinylidene chloride water dispersion.

A study was made of film laydown versus functional properties when controlled by lineal speed, curtain height and dispersion flow rates on the Gasway curtain coater.

A film was shown of this type of coater in pilot operation at the National Starch labs. One advantage of this coater pointed out by Mr. Willis was that, unlike other common coating methods, this would not force coating material into the paper. Another advantage — the curtain coater equipment costs less.

Future? Look for this firm to adapt the curtain coater for continuous web operating.

New Dialdehyde Starch Wet Strength Additive

In a paper by B. T. Hofreiter, G. E. Hamerstrand, D. J. Kay and C. J. Rist, USDA Northern Regional Research Laboratory, conclusions drawn from a detail study on the use of dialdehyde starch (DAS) with four basic pulps—softwood bleached and unbleached kraft, softwood bleached sulphite, and semibleached groundwood were given. These investigations emphasized the practical aspects of DAS application and, for the first time, evaluated the effectiveness of additive build-up. It is to be understood that the term "closed white-water system" is not strictly true since a small portion of the white water is discarded after each handsheet preparation.

Extrusion Coating

New and better understanding of the extrusion coating process seems possible using methods described by J. E. Guillotte and T. F. McLaughlin, Jr., of the Polychemicals dept. of E. I. duPont de Nemours & Co. In a joint paper they described the development of a mathematical formula for predicting the adhesion bond strength of polyethylene applied to kraft paper.

Coaters must select a temperature high enough to overcome heat losses during travel of the extruded web in the air gap. Too high a melt temperature can result in processing problems. The ability to calculate the temperature drop in the air gap would permit use of the minimum exit temperature needed for the adhesion desired.

The information reported was preliminary in nature and concerned only one type of paper (50 pound, northern kraft) and one type of resin (Alathon 16 polyethylene). However, this work may well provide mathematical constants for the formula to make it applicable to other resin-substrate combinations.

A paper by V. G. Crolius and W. E. Ebeling of du Pont's Polychemicals Dept. and R. C. Parsons of the Materials Research dept., Reynolds Metals Co., dealt with the technology of extrusion coating aluminum foil with polyethylene. Emphasis was on the relationship between adhesion strength and processing variables such as melt temperature, coating thickness and web exposure in the air gap.

Application Techniques For Polyvinylidene Chloride

Utilization of existing coating methods for the production of polyvinylidene chloride coated paper was the topic of R. F. Avery, Dewey and Almy Chemical Division, W. R. Grace & Co. Details were given on the company's new Daran 202 emulsion, a high vinylidene chloride content, high solids, odor free polymer. The resin is internally plasticized by copolymerization and allows the attainment of exceptionally high barrier characteristics.

Films produced from this emulsion are said to be characterized by high glass, toughness, excellent mar resistance, moderate reorability, moderate foldability, some fire retardancy, excellent clarity, good blocking resistance, high electrical resistivity, high gas impermeability, some extensibility and the ability to be heat sealed face to face, glued face to back and readily printed without special treatment.

An important point brought out during the discussion was that the substrate must be properly treated to obtain holdout of the resin while it is still in water emulsion form. Otherwise, barrier properties will be affected.

It has been found that a clay precoat is most generally satisfactory. If the surface is smooth enough and provides sufficient hold out, either an air knife or metering the temperature drop in the air gap would permit use of the minimum exit temperature needed for the adhesion desired.

When making two coating passes it is desirable not to apply the same amount of coating in two passes. A first coating of 3½-4 pounds per ream and a second coating of nine or more pounds provides a more flexible, score resistant coating. Another point—flexibility of the substrate and pre-coat will be reflected in final flexibility of the barrier coating. Other forms of surface treatment may be satisfactory. For instance, a high water finish at the machine calender.

Blooming is a danger with certain substrates and pre-coats. Glycerine plasticizers in glassine can cause it; so can ammonia in the clay precoat adhesive systems.

Air Knife

Physical characteristics of the Daran emulsion make it most suitable for air knife application. In a single pass, coatings ranging from 3 to 18 pounds per ream have been applied. At coating weights above 11 pounds, care is required to avoid skin formation on the top surface. A cracked coating may result.

Coating viscosity may be raised in some cases to overcome a rough uneven surface. Viscosities should

never exceed 200 centipoises, however.

Foam must be avoided; otherwise it may be incorporated into the resin emulsion. An adequate reservoir is the answer.

Good circulation throughout the system is important to prevent film formation in dead spots.

Gap setting on the air knife blade should be medium to large (about 30 mils) and the knife as close to the paper as practical.

A more uniform surface with fewer pinholes will result on most substrates by increasing the applicator roll speed.

Metering Bar Coating

Good barrier characteristics can also be obtained by applying the vinylidene chloride emulsion by means of a metering bar coater. Coating weights ranging from 1¾ to 25 pounds per ream have been applied by this process. Wire wound rods may be inserted for greater coating weights; those between number eight and eighteen were found to be the most satisfactory.

Again, a surface treatment for the substrate is necessary.

It is advisable to operate at a somewhat lower solids content (about 53 per cent) with this type of coater.

Viscosity limitations are about 400 centipoises maximum.

Other factors are pretty much the same as with the air knife.

J. K. Magrane, American Cyanamid, speaks on grafted paper.

Curtain Coater

With the curtain coater 60-62 per cent solids may be applied without addition of thickener or other modifier. Speeds may be as great as 950 f.p.m.

Curling during drying may be a problem, but may be eliminated by better surface holdout.

Other Methods

Size press and rotogravure coating may be utilized to apply the emulsion but were reported to have some limitations. The trailing blade is prone to cause pinholes and therefore has serious limitations in applying a high barrier coating.

Grafting Technique Has Potential For Altering Paper Properties

A promising method for altering the physical properties of paper by grafting various vinyl monomers onto cellulose fibers was the subject of a paper by E. Schwab and V. T. Stannett, College of Forestry at Syracuse; and D. H. Rakowitz and J. K. Magrane, American Cyanamid. Utilizing a ceric ion catalyst, the process is rapid, relatively simple and is done at room temperature. Paper may be cross-linked, strengthened, made more plastic, stiffer, softer and more or less hydrophilic. Degree of change may be controlled by varying the amount of grafting.

Various properties were determined for papers grafted in either a laboratory scale batch process or with a continuous web pilot machine. Properties were compared with ungrafted paper and in the case of one copolymer system, with latex impregnated paper.

In preparing a typical graft by the batch procedure, paper of known weight was placed in a reaction vessel together with monomer and water. Nitrogen was passed through the system to remove oxygen. After 30 minutes of bubbling with nitrogen, a measured amount of catalyst solution (ca. 0.1 molar cerim ammonium nitrate in 1 molar nitric acid) was added and the resulting polymerization was allowed to proceed for a predetermined time. The Grafted paper was then removed, washed with water and solvent for the homopolymer and finally extracted in a soxhlet apparatus to remove any residues of homopolymer.

The "machine grafts" were prepared by a continuous web, pilot plant process developed by American Cyanamid.

The initial experiments showed that it is feasible to graft a number of different polymers and copolymers using this technique. Among monomers which are suitable for such grafting are acrylic and methacrylic esters, acrylonitrile and acrylamide. In addition, the feasibility of continuous operation has been demonstrated indicating that grafting might be performed at some stage of the papermaking operation.

The investigation was concerned with the effect of: variations in nitrogen purge, temperature, catalyst concentration, monomer concentration, time and other variables. It was found possible to graft readily onto most bleached cellulosic papers. Amounts of graft can be controlled by varying monomer concentration and/or time.

Results of tests showed that:

1. An essentially linear relationship existed between per cent graft and thickness.

2. Grafting usually increased tensile strength compared to untreated papers. In the case of polyacrylamide the greatest improvement in dry tensile was shown with less than 15 per cent graft improving tensile by as much as 100 per cent. Wet strength of this graft was low however.

3. Greatest increase in elongation were obtained with the acrylate esters.

4. Grafts using a strong inextensible polymer such as polyacrylonitrile produced the greatest increase.

5. Rubbery polymers such as ethyl acrylate increased tear resistance while brittle polymers lowered the tear factor slightly.

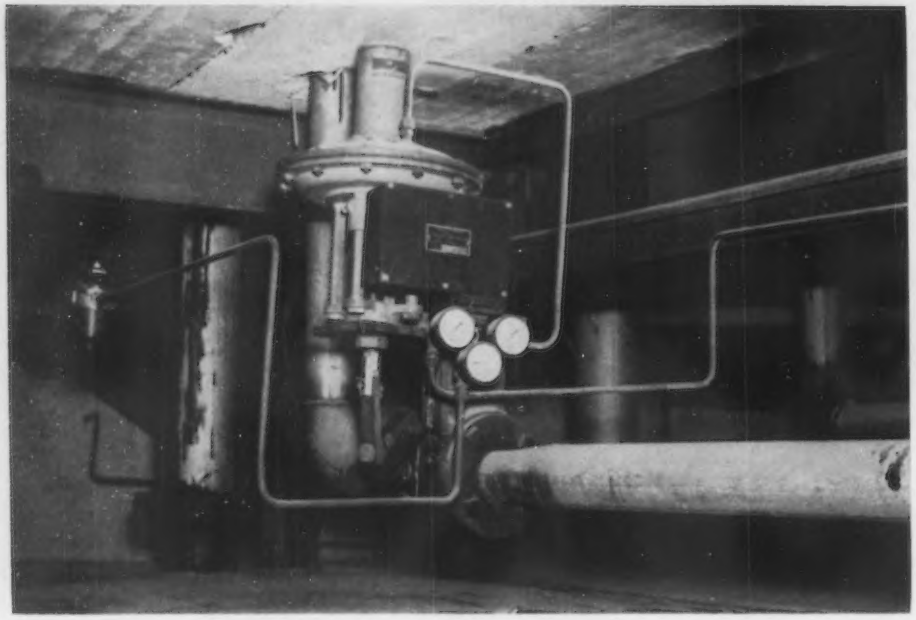
6. Fold endurance increases of as much as 1,000 per cent were observed for polyacrylamide at 30 per cent grafting. Other polymers showed a considerable increase too, except for the brittle types which decreased fold resistance.

7. Some grafts had low burst strength, but others such as polyacrylamide gave considerable increases.

8. Both soft and hard polymers improved abrasion resistance.

9. Stiffners was increased nearly 300 per cent at 100 per cent grafting with an ethyl acrylate/acrylonitrile copolymer.

In general, comparing grafting with latex impregnation (for an acrylonitrile/ethyl acrylate copolymer) dry strength properties are improved by grafting to levels approaching that of latex treatment. Wet strength properties are generally superior for the grafted papers.



ALL TOO OFTEN control valves, especially "automatic" ones are placed in inaccessible spots. This one above a white water tank and under the floor means a maintenance man has to crawl in on his hands and knees. Fortunately we have had relatively little service on this particular valve.

More Attention To Cost of Control Valve Maintenance Is Needed

Robert Wright,
Downingtown Paper Co.,
Downingtown, Pa.

On the basis of mill experience the author concludes that control valve maintenance, even of a perfectly applied valve, can represent a major expense. Selection of the best possible valves for the application, is one answer.

The problems of control valve maintenance are many and complex. This article will highlight certain areas rather than attempt to go into all aspects of the problem. In these selected areas we shall try to make a definite presentation of some of the basic and normal problems of maintenance and evaluate them in terms of real costs both in direct out-of-pocket expense and in losses due to downtime.

From any detailed study of this type it is startlingly evident that one of the major costs of control valves is maintenance and that it is not at all unusual under normal circumstances for the cost of maintaining a valve over its lifetime to equal or exceed the initial capital investment. This underscores the vital importance of selecting valves and their actuators carefully and thoroughly for the job to be accomplished. For even what appears to be a major increase in initial investment may well turn out to be a far more economical investment over the life of the valve.

Typical Maintenace Operation

Before we go into the details of evaluating each of these elements, let's look at a typical situation of control valve maintenance. The valve is not responding correctly and the maintenance department has been asked to look into it. A quick check shows that the valve is sluggish in its response to the instrument signal, apparently due to some internal friction or binding. This first check out may have taken only half an hour (but card records more often show an hour or more). Now the maintenance man will have to remove the valve from the line, take it into the shop, inspect it, correct the problem at hand and replace the valve in the line. Even providing this can be done without any unexpected problems (such as broken threads, fittings, etc.) it is not at all unusual for a minimum of two hours to be required in the plant and another two hours in the shop. This situation is compounded if more than one trade is required to remove the valve. Maintenance card records from paper mills indicate that this is an extremely conservative figure. It is not at all unusual for six, eight or twelve man-hours to be expended before a valve is repaired and back in operation. By the time overhead is included it may cost anywhere from $5 to $10 or more per hour so that an expense of a minimum of $20 to a maximum of $100 to $120 may be required in a single (not necessarily major) maintenance overhaul.

Actual card records of literally hundreds of valve installations con-

firm the fact that this type of valve maintenance is common. For a variety of causes—simple or complex—control valves may be removed from the line and require shope maintenance. Even the most routine form of control valve maintenance can require substantial amounts of money. When this is multiplied over the average life of control valves (about five years) it is evident that the total initial cost of the valve may even be exceeded by the maintenance and repair cost.

Oversizing Causes High Maintenance

It seems obvious that a valve must be selected correctly for the service involved. Type of valve, material, size and actuator must all fit the particular application, yet in actual practice this is all too often overlooked. Mis-selection in any one of these areas, even a relatively minor mis-selection, can mean the difference between a valve that operates with a minimum of maintenance and one that requires constant repair.

Take, for example, an application involving a butterfly valve on throttling control of whitewater. A "factor of safety" allowed in initial selection more than tripled maintenance problems. The material, in this case stainless steel vane and shaft and cast iron body, were properly selected for the whitewater since corrosion was not a problem. However, oversizing did lead to maintenance problems . . . and the service records prove it. In brief:—

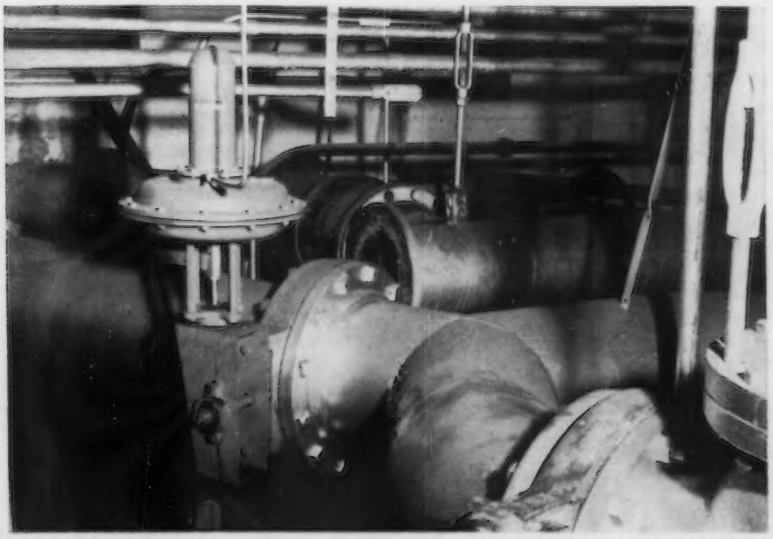
One valve — properly sized—required only normal preventive maintenance. Another valve, moderately oversized, that had to control most of the time within a small portion of valve travel required substantially more maintenance with a number of breakdowns. A substantially oversized valve having to do all its control work in a nearly closed position required a very high level of maintenance.

An anticipated increase in volume of whitewater led to the selection of the oversize valves. Even had this increase occurred, experience has shown that it would have been more economical to have provided the properly sized smaller valves. These could have been transferred later to other applications within the mill.

The point to emphasize here is that the operating conditions were the same and the three valves were identical except for size. They were made by the same manufacturer. The controls and actuators were of identical type, properly sized for the particular valves involved. The only difference was the amount of maintenance involved with the over-sized valves.

Material Selection and Matching

Further examples arise in material selection. Another butterfly valve installed at Downingtown required frequent maintenance because materials were not matched to the conditions. A cast iron body and a stainless steel vane and shaft were provided. While neither the stainless steel nor the cast iron showed appreciable corrosion, binding occurred between the shaft and valve body preventing proper valve operation. Only when the original valve body was reamed out and inset bushings (stainless steel in one case and brass in another) put in place was valve operation satisfactory. While the corrosive attack was relatively low, binding and galling developed which caused erratic valve action. A seemingly small point, but one that could well have been anticipated if full operating data were provided to the valve manufacturer. It is amazing also how often secondary materials are specified for valves operating in corrosive conditions primarily because of the lower initial cost. The tremendous amount of maintenance required quickly eats up the initial savings.



ANOTHER DIFFICULT working location required a ladder to get to the right level then a platform or plank stretched across pipe hangers to enable the maintenance man to reach the valve. Often this type of positioning is necessary but certainly is not conducive to easy maintenance.

Valve Type Factors

Valve type, too, is important in deciding an application. Many times several different types of valves are applicable. For example, throttling control is readily obtained with a butterfly valve. But if tight shut off is required, then a butterfly valve may become expensive. For tight shutoff a Saunders type valve may be far more desirable but creates special problems in sizing if good throttling control is to be provided. However, a properly sized Saunders valve will provide adequate throttling control for a wide range of flow conditions. A Saunders valve also provides a high degree of corrosion resistance at relatively low cost either through lined bodies or by providing suitable valve body material.

For handling paper stock a guillotine valve with sharp gates and orifices in a variety of shapes may be used.

In all stock valves the problems of de-watering at reduced flows require considerable thought. For example, guillotine valves operating on paper stock flow control require far less maintenance with flows from 50 per cent to full open than with flows between zero and 50 per cent. Oversized valves of any type on stock lines will cause clogging and finally, dewatering of stock in the lines. Special provision in such valves for water injection are only partially successful. Any valve handling paper stock must be designed in such a way that it can be opened easily for cleaning.

Numerous cases of improper valve installations, result from using a

valve which is "on hand." Economics seem to justify this at the moment but a survey of three different installations, each using the same type valve, service and actuator, prove that the original economy was lost in increased maintenance due to improper sizing. The same thing, of course, holds true if it were improperly applied or to service. Our design department is very cognizant of this type of economic error and as a result better "in line" life expectancy is being experienced with a resultant decrease in maintenance cost and downtime.

There is no question that better materials in valves, more thought to application and getting away from the "we have one let's use it" attitude is being done in our industry today and yet we can still overlook the insignificant item which can and does cause us considerable trouble. i.e.: a linkage, external to the valve and actuator but exposed to paper mill elements. The linkage rusts, corrodes and as a result binds, giving you the same production difficulties as though you had worn off the butterfly in a butterfly valve.

So, after you are convinced that you have done everything possible to make a valve installation, the perfect job, take at least one more look.

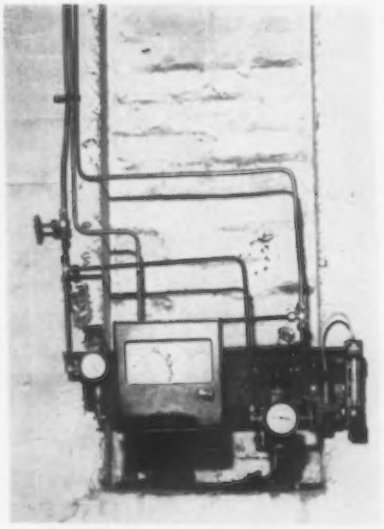
Accessibility Problems

Regardless of how well a control valve is suited for its job there will be a need, sooner or later, to replace or repair the valve. Types of service, of course, dictate to a large extent how long a valve will be trouble free. Location of valve then plays a part in cost of maintenance also. We don't mean that all valves should be brought down to ground level but in a lot of instances a valve could have been moved a foot in either direction and maintenance costs would have been 50 per cent to 60 per cent less, simply because they could work on it. In some cases the valves are so close to a piece of equipment that the flange bolts cannot be removed but must be burned off, and this condition can be found in many plants.

Same Basic Problems

The examples previously noted might represent to some degree exaggerated conditions. Because of this it is important to emphasize some of the basic problems of valve maintenance that do of themselves represent major expenses. Valve maintenance costs money. No matter how perfectly applied, every control valve needs adjustment, positioning, trim replacement, etc.

For example, changing the trim in a globe body control valve is not an uncommon maintenance chore. Under the best of circumstances it will require a total of four hours—an hour to remove the valve from the line, bring it to the shop, a couple of hours of shop time removing the trim and reseating the valve and another hour to replace it. If the seat is frozen in place, it becomes necessary to heat the body and/or chill the seat ring with dry ice to loosen the seat so that it can be removed.



IN ADDITION to the problems of inaccessibility, the high humidities found in the mills add considerably to the problems of maintenance. Notice the weep lines on the wall and the moisture on the instrument.

The valve may have to be set up in a lathe so that the threaded seat can be backed out.

Special tools (such as seat wrenches) may cost as much as $400 for a single set. Yet even with this equipment threads may be stripped and a valve destroyed. These losses are not uncommon. Providing all this can be done without special tools there is still substantial cost involved.

Many records show, by honest appraisal, a minimum of four hours and as much as ten without getting into complications. Five dollars an hour for direct labor and overhead is most conservative. Many plants figure as high as $10 and $12. At $5 a simple valve trim replacement will cost anywhere from $20 to $50 for labor alone. With complications it can run to two and three times that figure. If additional trades are required to take the valve in and out of the line, for example a pipefitter plus an instrument man, plus an electrician, costs can again be doubled or even tripled. And, this is not uncommon. With costs such as this it is certainly reasonable to insist that the maximum attention be given early in design stages to "building in" low maintenance. Low maintenance starts with the initial valve selection and even if initial costs are slightly higher it is quickly justified by reduced maintenance that is possible through proper selection.

Designing New Facilities

We have learned, sometimes the hard way, that when it comes to designing new facilities it pays to consult the plant engineers and maintenance men. They are the men who will have to keep the plant running. By getting the benefits of their experience with valve maintenance and installing the most modern valves possible—valves that are designed for ease of maintenance for the particular type of application—we save money.

Too often the design engineer has never talked with the maintenance man and not having heard specific complaints assumes that valve maintenance is not a problem. It is an expensive part of our work and an expensive part of overall plant operation. We have tried many different types and makes of control valves and in my opinion there is one type of valve that does very substantial help in meeting these maintenance problems. This is the split body valve in which the seat is clamped between the two halves of the body. The seat is instantly removed and easily replaced simply by unbolting the two sections of the body. In many cases the valve need not even be removed from the line. I believe this type of valve has wide application in the pulp and paper industry and could go a long way toward solving the problems I have outlined in this article. This does not minimize the importance of the other points I have raised since they apply to any type valve.

With all of these precautions I believe that overall control valve cost can be substantially reduced and considerable operating downtime eliminated. With the better control that should then be possible, product quality can often be improved. From a plant operating viewpoint, whether it be a chemical plant or any process plant, these gains are important and should be considered thoroughly in the original selection of valve size, material and type.

Press Felts and Water Removal

Part II. A New Theory of Press Nip Dynamics

Dan B. Wicker,
Vice President,
Research & Development,
Huyck Felt Co.

In the first paper, (See PAPER TRADE JOURNAL, Oct. 16, 1961) it was pointed out that Huyck Felt Co. researchers have developed instrumentation to test felts and paper sheets under high speed impact conditions. Under such conditions the properties of both felt and sheet have been found to be considerably different from those observed under gently applied loads over relatively long time intervals. Here we will discuss the implications of these findings as regards to felt and press section design. A theory will be posed, the proving out of which will provide a systematic pattern against which Huyck's research program continues.

Wringing and Lateral Flow

While significant amounts of water are removed from felts by suction (as well as by wringing), the best information available indicates that the removal from paper sheets that takes place in the press section is, for all practical purposes, by wringing only. Press geometry shows that such wringing of water from felts or paper sheets requires lateral flow (that is, parallel to the flat surfaces) within the fibrous structures in order to conduct the water to points where it can escape. That is to say, in suction presses the water must migrate from the areas over the lands to those which are over the drill openings; in plain presses the water must migrate to the nip entrance where it can drain away by gravity over the surface of the bottom roll. Within the range of paper machine speeds and press nip time intervals, newly formed paper sheets have little or no tolerance for lateral flow; the internal flow of water will cause dilution and crushing of localized areas. Felts, however, have a much greater lateral porosity and strength and thus have a very wide tolerance for this type of flow at high rates. Hence, ideal press nip conditions are those that result in the least lateral flow within the paper sheet and the most within the felt.

The principles of fluid dynamics require that the water in a wet sheet under pressure will escape by following the path of least resistance. If the felt offers the path of least resistance to lateral flow, water will be pressed directly from the sheet to the felt with little or no lateral flow within the sheet (See Figure 1, Case I). Otherwise, the lateral water redistribution will occur within the sheet and may exceed the limit of its tolerances for dilution and crushing or marking (See Figure 2, Case II).

Pressure-Time Schedule in the Nip

Paper sheets will, of course, be raised in consistency by pressing or wringing for an interval of time. Obviously, the higher the pressure and longer the time, the more water removed; but the combined effect is not in accordance with a simple proportion. After some water has been pressed from the sheet, it takes proportionately greater pressure and/or time to reduce thickness further and remove additional water. The pressure-time schedule in a press nip is controlled, in part, by the roll loading, the speed and the dimensions of the rolls, and by the properties of the roll materials such as granite, rubber covering, etc. Additionally, this schedule will vary over a considerable range according to the dynamic and hydraulic properties of the felt. These properties are determined by felt design, by its water content and by the effects of use such as run-in, fill-up or wear.

For best water removal and outgoing sheet consistency, the nip conditions should impose uniformly on the sheet the highest pressure for the longest time interval that avoids crushing or other damage. An analysis by fluid dynamic principles indicates that the pressure-time schedule in a nip typically follows the pattern shown in Figure 3. Upon entering the nip the pressure imposed on sheet and felt rises to a maximum at the midpoint of the nip. Since considerable water will have been pressed out of both sheet and felt, and since the recovery from compression is not complete and instantaneous, the pressure drops off quite sharply at some point shortly after the mid-nip. Under many typical conditions a slight vacuum is prob-

"Water removal in the press section is controlled by the pressure schedule and lateral porosity conditions which exist in the entrance side of the press nip; and on the pressure schedule and felt capillarity conditions in the emerging side of the nip."

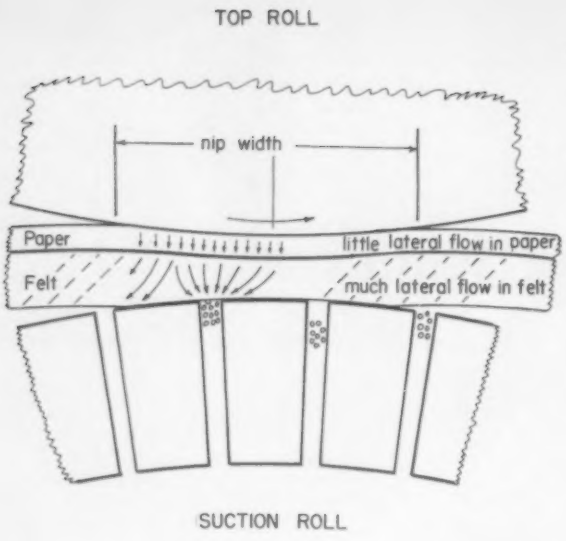


FIGURE 1. LATERAL FLOW IN NIP REGION, CASE I

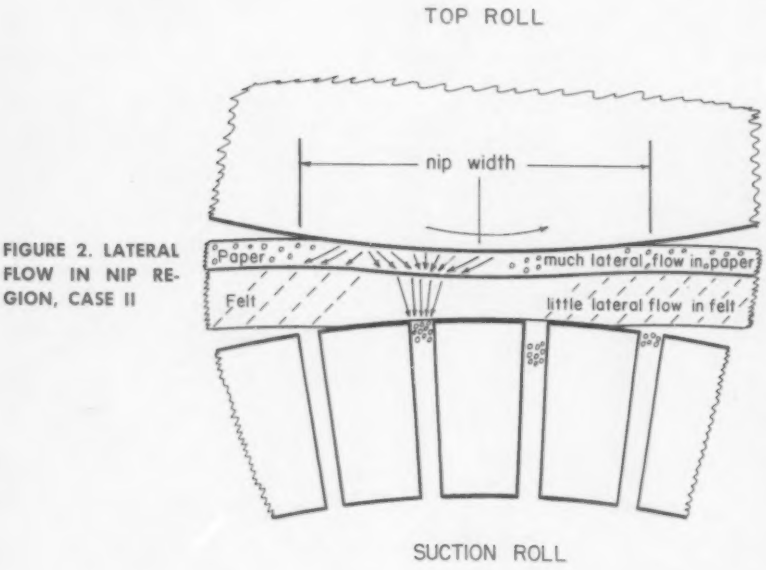


FIGURE 2. LATERAL FLOW IN NIP REGION, CASE II

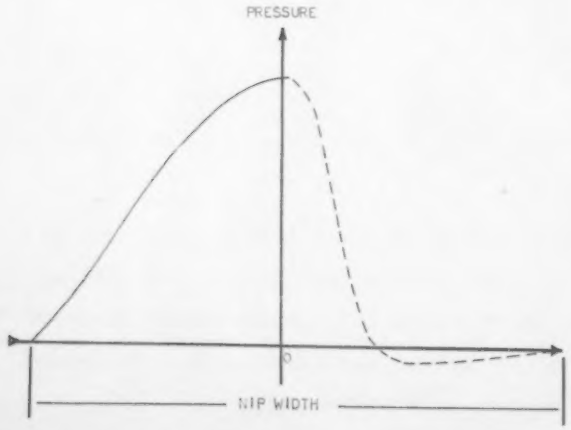


FIGURE 3. EXPECTED PRESSURE SCHEDULE IN THE NIP

ably developed before atmospheric conditions are restored at the nip exit. The vacuum is anticipated purely on fluid dynamic considerations rather than as a result of recovery of felt thickness from compression. The principle involved is the same as that which develops suction between the wire and table rolls on the down-stream side. The general character of the nip pressure curve presented has been confirmed experimentally although the particulars of the emerging side have not yet been completely proved out.

Rewetting on the Emerging Side

During the period of falling pressure as the sheet and felt emerge from the nip, the balance of capillary forces is such that the water in the felt can be transferred back to the sheet. White and Berdux (5) have demonstrated the existence of the capillary flow forces, and Wahlstrom (2) found such sheet rewetting occurring on a newsprint machine press. Accordingly, it is probably beneficial to have a uniformly fine capillary structure on the sheet side of the felt. It is especially important that the sheet not emerge from the nip in contact with large, water-filled voids as might occur in very coarse felts.

Dynamic Compressibility and the Water Wedge Effect

In Part I it was pointed out that under dynamic conditions a felt that is fully saturated with water acts as if it is less compressible than when in the moist condition and contains some air voids. It was also pointed out that a felt which has been firmed up, or made more dense, as a consequence of being run-in, also shows reduced compressibility under dynamic conditions. The water removal results of these two types of reduced compressibility are, however, quite different. It has been demonstrated experimentally that the additior of water to a felt to the point of saturation can so affect its compressibility that it will, under the same press loading, lift the top roll somewhat and increase the clearance in the nip. This "water wedge" effect manifestly allows more water to be held in the voids of the felt as it passes through the nip than if the felts were compressed to the normal degree.

The hydraulic incompressibility just described has an effect on the water removal process quite different from that experienced as a consequence of running-in a felt and compacting it somewhat. In this latter case, it has been shown by measure-

ment that the solid fiber structure has become more dense and the amount of void area has been reduced. Such felts pass through the nip with a lower moisture content and a finer capillary structure than felts of similar character which are rendered less compressible by reason of carrying more water to the nip. In the light of the discussion of the rewetting effect, it can hardly be expected that higher sheet consistencies are obtainable when the felt is so near saturation that the water wedge effect is significant. It is also to be noted that the hydraulic conditions which accompany the water wedge effect will enhance the amount of lateral flow that occurs within the paper sheet itself and, hence, are likely to give rise to crushing.

Summary

To summarize, Huyck's research program has led to the postulate that water removal in the press section is controlled by the pressure schedule and lateral porosity conditions which exist in the entrance side of the press nip; and on the pressure schedule and felt capillary conditions in the emerging side of the nip. A firm, uniform felt with a lateral porosity much greater than that of the pertinent sheet is of paramount importance. The sheet side of the felt should have a fine, uniform capillary structure. The dynamics of the press nip are such that high speed testing methods are required to define the water removal properties and crushing tolerances of any particular wet sheet; also to define the felt properties that best accommodate such a sheet. Research continues on a broad scale, both in the laboratory and on the paper machine, to complete the proving out of this theory on a systematic basis.

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PJT NEW LITERATURE

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Gives information on boxmaker for bottom-sealing of corrugated containers prior to filling. Four-page illustrated bulletin describes capacity, opening, bottom closing, squaring, sealing and delivery to packer. Adaptable to packing of nails, bottles, loose materials, and bulk and flowable solids. Huntingdon Industries, Inc., 860 Welsh Road, Bethayres, Pa.

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Describes solid-cast Everseal encapsulation for the protection of motor windings against severe environmental conditions. Special formulations can be provided to specifications in order to meet rare and extreme conditions existing in particular motor applications. 8 pp. Bulletin, #F-2034. U. S. Electrical Motors, Inc., P. O. Box 2058 Terminal Annex, Los Angeles 54, Calif.

Glue
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Describes cost and maintenance saving kit, for corrugated case sealing machines of any make, to replace roll-type adhesive applicators. Removal of rollers is not necessary. Huntingdon Industries, Inc., 860 Welsh Rd., Bethayres, Pa.

Introduction to Boiler
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Answers questions like: "How Pure Must Feedwater Be?", "How Does Operating Pressure Influence Boiler Water Composition Requirements?", and "What is Meant by 'External' and 'Internal' Feedwater Treatment?" Bulletin, Nalco Chemical Co., 6216 W. 66th Place, Chicago 38, Ill.

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Describes the results of a research project on size press operations in mills throughout the country. The report tabulates over 18,000 individual answers to 127 questions to the mills. Operating characteristics, grades, speeds, nip pressures, and other operating aspects of size presses as applied in the sample studied are condensed. Patton Manufacturing Co., 1803 W. Pleasant St., Springfield, Ohio.

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Vibrating
Paper Joggers

Presents data and specifications are presented on Syntron's complete line of single and double action units, as well as two, three, and four-bin Business Form Joggers, for fast alignment of paper stock. Bulletin No. PJ-73161. Syntron Co., 587 Lexington Avenue, Homer City, Pa.

Turntable
Lift Combinations

Contains application and installation data sheets of SEC's expanding line of turntable lift combinations. Includes descriptions of pneumatic lift turntables with stationary custom conveyor section, with manually or power rotated custom conveyor section, or with two-way, right-angle, non rotating turntable. Folder. Specialty Equipment Corp., 290 Park Ave., Worcester, Mass.

Financial Aspects Of Pulp and Paper Manufacture and Sale — Some critical observations of an investment adviser who is a specialist in our industry

The professional investor's view of the paper industry has in recent years undergone a change. In the late 40's there was very little interest in the industry; in the early 50's the paper industry was generally regarded as "cyclical"; paper stocks as a whole sold at about seven to eight times earnings. By the middle 50's paper stocks had caught on as "growth" stocks and had moved up to perhaps 12 to 15 times earnings. In recent years earnings have been so uncertain that it is hard to say at what price-earnings ratios paper stocks now sell. There are now three distinct attitudes toward the industry: it is regarded in some quarters as "cyclical" and in some quarters as a "growth" industry; the predominant attitude is now that it is a "cyclical-growth" industry. The institutional investor is, in any event, quite disillusioned with the earnings performance of the past few years.

Approaching the industry from another point of view, in the early 50's most paper company executives discussed earnings prospects rather freely. By 1955-57 at the height of industry optimism, it was rather easy to get from top executives firm projections of new planned capacity: from these it was the prevalent fashion to run out earnings projections based on an estimate of a certain profit per ton or per sales dollar. Over the last four years, management guestimates have been almost completely lacking. Most executives are not willing to project earnings: in most cases they just do not seem to know what their companies will earn. In seeking an explanation for this inability to forecast earnings, there are three usual answers given:

"Unsatisfactory cost-price relationships," "Too much capacity," and/or "Competitive pricing."

Why do these Conditions Exist?

These explanations present somewhat of a paradox since under theoretical economics the basic factors of the industry would not seem to indicate unstable prices. The industry enjoys:

1. Abundant, low-cost, self-replenishing, raw material.
2. Relatively stable and growing demand with little cyclical fluctuation.
3. Extremely high capital requirements with resulting difficulty of entry.

An economist looking at these factors in the abstract would characterize this as a situation with inelastic demand where the probabilities would favor stable prices.

In addition, the industry has not in the past been plagued by new-comers (although this situation may be changing); has excellent trade associations with perhaps as good statistics on supply and demand as are available in any industry; and the majority of companies in the industry are publicly held with apparent responsibility to shareholders. The existence of these basic factors raises the question as to why competitive pricing does exist. From my point of view it would seem that there are two major reasons:

1. Inadequate or simply "lousy" costing—much of the planning for new capacity has been done with costs predicted on full 7-day operations—with prices determined accordingly. Some companies seem to have no real costing by product at all—and pricing policies reflect this.

In doing planning for the future, the industry would be a lot better off if they assumed that "normal" operations would be less than full 7-day operations, determined costs on such a basis, and made "return on capital" calculations in planning new capacity accordingly. I would guess that for 1962 maximum operating rates will be something like 89-90 per cent on a 6-day basis and as low as 83-85 per cent on a 6½-day basis. These would seem to be more realistic figures on which to base "return on capital" calculations than 100 per cent rates.

2. Top management decisions appear to be made on a basis other than whether a move will create earnings or earnings per share—looking at the industry from the outside, considerations of prestige, size, share of market, utilization of raw material supply or pulp resources, seem to predominate management thinking. There is much too much willingness to look at growth of sales, tonnage, assets or market position rather than earnings or earnings per share. Decisions almost always seem to be made from the point of view of production—whether or not the product can be sold or at what price or whether the company can make a profit selling it seem to be secondary considerations. As a result prices from new products seem to be established as "dumping" prices rather than prices based on real costs.

"An economist looking at these factors in the abstract would characterize this as a situation with inelastic demand where the probabilities would favor stable prices."

Recent Record Poor

While one cannot be sure what the reasons for this poor performance are, it is certain that the record—particularly over the past four years—has been very poor. There has been an excellent growth in sales, tonnage and assets, but a very poor earnings performance. Both absolute profits and profits as a per cent of sales have declined sharply. In fact, in only one year since 1955 has the industry as a whole achieved better than a 10 per cent return on assets.

More than $2 billion has been put into new plant by the overall domestic paper industry between 1956 and 1960. In this period sales have gone up some 15 per cent but overall earnings—despite the $2 billion put into new plant—have actually declined by 10 per cent from 1956 to 1960. In this period, the only bright spot has been cash flow which has gone up some 6 per cent; however, on Wall Street we do not pay as much attention to cash flow as perhaps we should. An examination of sales and earnings of 15 of the largest publicly held paper companies active in printing and writing paper, shows that they have done somewhat better than the overall paper industry; their performance, however, still is pretty poor, especially in terms of per share earnings:

	Median % Increase—15 Companies—		
	Sales	Earnings	Earnings Per Share
Last 10 years	+ 170%	+ 92%	+ 30%
Last 5 years	+ 60%	+ 18%	− 12%

Aside from commenting on the rather poor statistical showing, a comment on prices seems in order. Until fairly recently prices and, incidentally, profits, went up when operating rates were around 85 per cent; prices were stable at 80-85 per cent of capacity; and they did not decline until operating rates declined into the 70's. Now there is considerable price cutting with operating rates at better than 90 per cent and it seems that operating rates have to be higher than 95 per cent for price increases to take effect and stick.

As compared to this, the steel industry has enjoyed stable prices at 50 per cent of capacity and there has been much talk about raising prices with operations currently at about 70 per cent of capacity. In the automobile industry in past years manufacturers have sold only a little over five million cars with a capacity to produce perhaps eight to nine million automobiles; despite inventories which have run as high as one million unsold cars, there has been no price cutting by the auto manufacturers. In the cigarette industry it is claimed there is no collusion because they have had something like five price changes in five years; I think you will agree that it is not impossible to have five price changes in an afternoon in the paper industry. All of these industries compete but do not have price competition. The Government put some Westinghouse and G.E. men in jail several months ago for violating the 11th Commandment —"Thou shalt not get caught." Had these companies used simple price leadership no one would have gone to prison.

I am afraid I can offer nothing constructive on how you might solve the price problem of the industry, but it certainly does raise a paradox of why, with inelastic demand, there is such severe price competition in the paper industry.

There are perhaps some further explanations for the poor performance of the paper industry. The industry has probably had it "too good"; demand has been too stable —not since the 1930's has the industry really had the problems of a cyclical industry. As a result, the industry has forgotten pricing discipline. In addition, there have been very few real changes in paper making machinery; machines do not ever seem to go out of production. However, I think probably the main problem is that **the goals of top management are not always the right ones, at least by Wall Street standards; too much attention is paid to size, sales and volume; too much attention is paid to production—not enough to selling; and certainly there is not enough attention paid to earnings and earnings per share.**

"There has been an excellent growth in sales, tonnage and assets, but a very poor earnings performance."

Some Observations and Conclusions

From the point of view of the outside shareholder the paper industry has done only a mediocre to barely adequate job—particularly over the last four years. Now, with a business recovery apparently well under way, there is renewed investor interest in the industry. There are a few institutions buying paper stocks as a "cyclical" or even "cyclical-growth" play. However, the paper companies have lost most of their appeal as "growth" investments. In fact, there is a real disillusionment on the part of the investment community with the industry's ability (or lack of ability) to show any real sustained growth in profits. As a result, many institutions are now using and will use any strength in the paper stocks, not as an opportunity to increase their investments in the industry, but as an opportunity to reduce or get out of their holdings.

There is no question that if you want to continue to put in new capacity you will need more money in the future. Some of this will have to be equity money. There is also no question that future equity money, as a result of past poor earnings performance, will be considerably harder to come by. It will certainly be more "expensive" to obtain since investors are likely to give a lower appraisal to earnings and earnings prospects than they have in the past. What will win back renewed investor interest is not growth in sales of assets or tonnage, but a good earnings performance. At the moment, unfortunately, there seems to be little prospect of a sustained improvement in earnings.

There is, unfortunately, no easy near-term solution to the industry's problems. However, we are now apparently going into a period of improved business and a possible boom. I would therefore respectfully submit to you that in considering your coming moves, such as planning for new machines, added capacity, etc.:

1. **Use realistic costing**—sharpen your pencils in doing your planning and figure whether or not you will really make a profit in putting in new capacity;

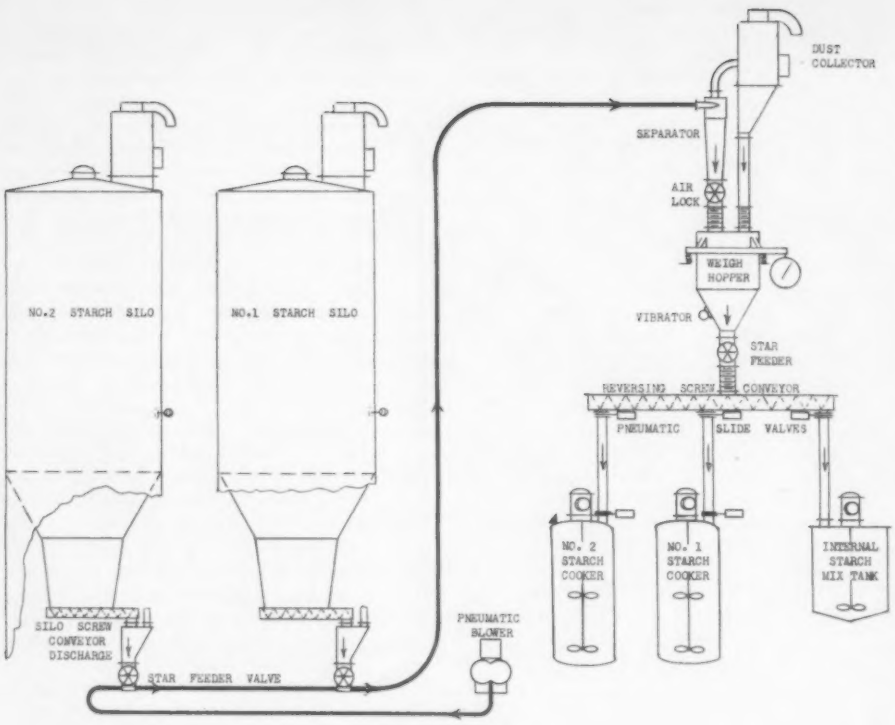
2. Consider not only the **production** side of new product planning but also the **merchandising** side—how you are going to sell additional tonnage and at what price;

3. Pay attention to how a proposed move will pay off in terms of **earnings** and **earnings per share** rather than sales, tonnage or share of market.

If present business forecasts are correct, you will have an opportunity to re-consider all of these factors. I hope, in doing so, you will think of your outside shareholders. If you do not you may be faced with a real antipathy on the part of the investor in the future. This could prove very costly in terms of raising future money. In some cases equity money may not be available at all on terms which you consider equitable.

I wish there were some easy answer to your problems; I am afraid there is not. Basically you do have a good industry—I hope you will do what you can to make it live up to its potentials.

Talk by Walter P. Stern, partner, Burnham and Co., before the Combined Meeting of the Printing Paper Manufacturers Ass'n. and the Writing Paper Manufacturers Ass'n., White Sulphur Springs, W. Va., October 4, 1961.



TYPICAL STARCH WEIGHING SYSTEM FLOW SHEET

Starch stored in large silos is discharged from bottom by screw conveyor to a star feeder. Air is supplied by a constant displacement blower, picking up the starch and conveying it to a centrifugal separator. Starch drops through an air look into the weigh hopper. Conveying air and entrained dust pass through dust collector with the air passing through to the atmosphere. Weighed starch discharges through a star valve to a reversible screw conveyor equipped with slide valves to drop starch to desired starch cookers or mixers.

Starch Weighing and Handling System Can Serve Dual Purpose

Starch for both size press application and addition to the stock can be handled by a single system. The author, well qualified in this field, tells what design considerations are involved.

William G. Farin
Chemical Materials Handling Engineer
Neenah, Wis.

By grouping size press and internal starch preparation systems it is possible to utilize the same bulk handling and weighing system for supplying both operations. Unless the same starch is used for both operations at least two bulk storage silos are necessary. These should be at least large enough to handle one and one half of the largest cars in which starch will be supplied. A bin level indicator at the level in which an additional car can be added is desirable.

The information covering the characteristics of the starch to be handled is as essential in designing the bulk weighing and handling as it was in bulk unloading. The same care is necessary in handling the potential explosion hazard and in keeping starch out of seals, bearings and close clearances. Here again careful consideration of star valve design and the use of air purge connections at star valve hubs may be necessary to prevent seizure. Again moisture must be kept out of the conveying system. Besides the possibility of rain, care must be taken to prevent steam from backing up into the conveying system from process heating or cooking operations.

How to Avoid Plugging

To insure discharge from the starch silo the cone at the bottom should have at least a 60 degree slope and a discharge opening of at least six square feet is recommended. Too often, small opening sizes lead

to plugging and hammering of bins around the discharge. The dents resulting further restrict the flow of materials so that discharging the material becomes increasingly difficult. Starch can be readily discharged from its large opening by a screw conveyor.

Conveying the material from the bottom of silos to roof weighing facilities is another application in which a pneumatic system lends itself well with a minimum of intermixing of starch. In this case the constant displacement blower pushes the conveying air through star valve feeders at the two or more silos. No starch is conveyed until the selected silo discharge screw conveyor and its star feeder are both started. Its starch is then conveyed up to the separator, then through a star valve feeder into the weigh hopper.

In this case the most serious problem is the entrained dust of the conveying air. As efficient a separation as possible will help reduce the dust collection problems. The filters should be of a material that will shed the product with a minimum of clinging and have an effective proven cleaning system.

The product discharge should have a free fall without contacting high velocity air currents that carry the product back up into the filter. An exhaust system is necessary on some collectors to equalize the pressure in the filter and reduce dusting.

Weigh Hopper Design

The weigh hopper should be of sufficient size to hold a full batch of starch for either the starch cookers or internal starch mixer. It can be vented through the dust collector or sock type bags. Aluminum construction is suitable with a quick access opening and 60 degree cone bottom discharging through a star feeder valve. To take care of possible plugging and insure complete emptying, the hopper is equipped with a vibrator rated to shake down the product from a fully loaded hopper.

After weighing, starch is discharged into a reversible screw conveyor. In one direction it conveys to the cookers and in the other to the internal starch mixer thus minimizing contamination.

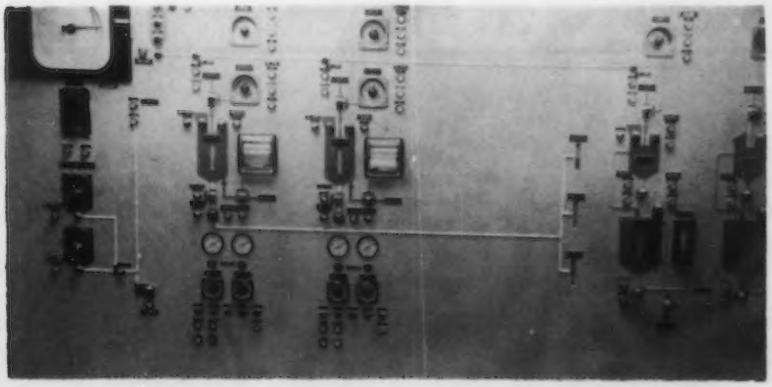
Slide valves directly under the conveyor open to the desired cooker or mixer with the control also operating a slide valve at the cookers that prevents any steam backup into the conveying system during the cooking operation.

As in any conveying, a definite operating sequence is essential to trouble free operations and interlocks are ordinarily provided to insure proper operation. Only a small amount of additional controls are required for complete automation of the weighing cycle and it provides the opportunity of freeing the operator for other functions while weighing out a batch of starch. A graphic panel can be used to advantage in being easily understood and permitting an operator to see at a glance the exact stage of operation and follow the operating sequence.

Controls for the System

As part of the panel, the weight of material in the hopper should be indicated at all times and recorded for each batch weighed. A weight selector is necessary to set the exact

Due to the explosion hazard involved, starch conveying equipment is preferably located on roof with the weigh hopper located in a penthouse. Starch is distributed by screw conveyor and dropped through roof to selected cookers or mixers. Starch storage silo can be seen in the background.



Graphic panel of starch handling operation indicates flow of starch from selected bin to weigh hopper to selected cooker or mixer. Weight is indicated and recorded for each batch on upper left corner chart. Automatic controls may be set up during dump of previous batch for weighing, mixing and cooking next batch of starch.

requirement of the next batch and a weight compensator provided to enable the shutting down of the silo conveyors and feeders preliminary to the pneumatic system so that the set weight is reached only after the conveying lines and dust collector systems have emptied.

Automatic-off-on buttons and indicator lights are provided for the silo feeders, blower, dust collector, hopper vibrator, hopper discharge feeder and screw conveyor. A selector switch is provided, picking the silo to be drawn from. The weigh hopper has empty, filling and filled lights. Start and stop buttons with indicator lights are provided for starting the weighing operation and for selecting each cooker or mixer to be supplied by the system.

With all switches on automatic control, silo selected and weight set, pushing the start button starts the weighing; pushing the selector button selects the place of discharge and the set amount of starch will be weighed and conveyed into the selected cooker or mixer. Interlocks prevent weighing from starting before the hopper is emptied, or for the hopper from discharging before it is completely filled, or before water additions have started into the cooker or mixer. If required due to malfunctioning of controls, all automation and interlocks can be bypassed by using the "on" buttons for manual control.

The automation can also be tied in further with mixing or cooking operations to prevent damage to equipment, mistakes in operating procedures and to reduce manpower requirements.

Modern Methods of Mechanical Pulp Manufacture

A new book, published early last Fall, covers comprehensively all aspects of groundwood pulp production. The author, K. H. Klemm, has a broad knowledge of groundwood manufacturing methods and has been associated with groundwood mills on both sides of the Atlantic. $5.00

CONTENTS

Preface iii
Foreword 1
Introduction 3

The Raw Material: Wood

Heterogeneity of Wood 8
Effect of Pulpwood Quality 17
Pulpwood Transportation to the Mill and Wood Storage Methods 27
Wood Handling Within the Mill 33
Removing the Bark from Pulpwood 38
Barking Methods and Bark Disposal 45
Modern Woodyard Systems 56

The Groundwood Mill

Theoretical Aspects of Production 63
Factors Influencing Grinder Capacity 71
Modern Grinder Types 75
Stones and Stone Handling 87
Grinder Drives and Governors 97
Coarse Screening and Rejects Recovery 102
Grinder Room Arrangement 106
Mill Manpower Requirements 108
Problems of Groundwood Quality 111
Routine Testing and Control Methods 114
Instrumentation in a Groundwood Mill 121
Grinder Control 125
Control and Record Keeping 138

Groundwood Stock Preparation

White Water Systems 144
Screening Methods and Principles 151
Modern Equipment for Screening 174
Theoretical Considerations of Screening Systems 183
Thickening 190
Bleaching 202
Stock Chest and Storage Systems 212
Fraction Mixing Process 217
Groundwood from Steamed Wood Blocks 220
Chemical Treatment Processes 223
Mechanical Pulp from Disc Refiners 229
Comparison of Groundwood Pulps 234

Closing Remarks

Economic Importance, Main Properties, and Uses of Groundwood 237

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We don't use helicopters, of course. But our technical experts are strategically located . . . to provide prompt, professional service whenever you sound the S.O.S. • Certainly we hope that you won't wait for a major crisis to call us. Our Paper Dyes Laboratories are eager to help you develop *new* color formulations as well as *re-evaluate* your older ones—*to help you to take full advantage of new developments for more economical, more accurate, more efficient processing.* And our facilities for fast, precise color matching are unsurpassed. At Cyanamid, we're as proud of our services as we are of our products. Don't wait until there's an emergency. We're only a phone call away • American Cyanamid Company / Dyes Department / Bound Brook, New Jersey.
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PAPER TRADE JOURNAL is always mailed on Friday and should be received in most parts of the country early in the week. If there seems to be undue delay in receiving your copy, we suggest that you write your local postmaster, with a copy to the postmaster at East Stroudsburg, Pa., where we mail, and a copy to us.

Prices of Fibers

MARKET WOOD PULP

FOURTH QUARTER CONTRACT PRICES PER SHORT AIR-DRY TON

Delivered Basis

	U.S.	Canadian	Swedish	Finnish	Norwegian
Groundwood	$82.50/ 90.00	$82.50/ 90.00	$90.00/ —	$90.00/ —	$90.00/ —
Bleached Gw'd.	97.50/100.00	97.50/100.00			
Kraft, Blchd.	‡140.00/150.00	‡140.00/150.00	150.00/ —	150.00/ —	150.00/ —
Kraft, Blchd. Hdwd.	135.00/140.00		140.00/ —		
Kraft, Semi-bleached.	130.00/140.00				
Kraft, Unbl.	117.50/125.00	125.00/ —	125.00/130.00	125.00/ —	
Sulphite, Blchd.	‡135.00/140.00	‡135.00/140.00	140.00/ —	140.00/ —	140.00/ —
Sulphite, Bl. Hdwd.	135.00/ —				
Sulphite, Unblchd.	125.00/ —	125.00/ —	125.00/ —	125.00/ —	125.00/ —
Sulphite, Unb'l. Gl'an.		140.00/ —	134.00/ —		
Soda, Blchd.	130.00/135.00	130.00/135.00			

‡ Depending on Brightness.

COTTON LINTERS

F.O.B. OIL MILLS PER CWT
WEEK ENDED OCTOBER 10

	Atlanta	Memphis	Dallas	Los Angeles
Grade 1	$8.50/8.25	n.a.	n.a.	n.a.
2	8.25/7.75	n.a.	n.a.	$7.50/ —
3	7.75/7.25	$7.50/7.25	$7.50/7.00	7.00/6.75
4	7.25/6.75	7.00/6.75	6.50/6.25	6.50/6.00
5	6.75/6.25	6.50/6.25	6.00/5.50	5.50/5.25
6	6.25/5.75	6.00/5.75	5.25/5.00	5.00/4.75
7	5.75/5.00	5.25/5.00	4.75/4.00	n.a.

WASTE PAPER MARKET

Mill Prices, f.o.b. Trucks Shipping Point — Includes Brokerage

These quotations are a partial indication of the price range on volume tonnage in each market on the date specified, as gathered from major dealers and brokers. SPECIAL PACKINGS AND SPOT TONNAGE NOT INCLUDED. Prices nominal.

	New York	Boston	Chicago	Los Angeles
	October 16	October 16	October	October
No. 1 Mixed Paper	$ 14.00/ 15.00	7.00/ 10.00	6.00/ —	12.00/ —
No. 1 News	21.00/ 24.00	11.00/ 14.00	18.00/ —	16.00/ —
Overissue News (Lg. size)	21.00/ 24.00	12.00/ 14.00	23.00/ —	18.00/ —
Mill Wrappers	19.00/ 22.00	10.00/ 12.00	11.00/ —	13.00/ —
Old Corrugated Containers	22.00/ 25.00	18.00/ 18.50	22.00/ —	16.00/ —
Super Resorted Kraft Paper	35.00/ 40.00	— / —	33.00/ —	50.00/ —
New Double Kr. Ld. Corr. Cuts	27.50/ 30.00	32.50/ 35.00	35.00/ —	27.50/ —
(Semi-chem. medium)	45.00/ —	40.00/ 45.00	42.50/ —	— / —
New 100% Kraft Corr. Cuts	40.00/ 42.50	— / —	52.50/ —	— / —
New Br. Kraft, Env. Cuts	65.00/ 70.00	65.00/ 75.00	47.50/ —	37.50/ 40.00
New Br. Kr. Bag Waste Prntd.	50.00/ 55.00	50.00/ 60.00	47.50/ —	35.00/ —
New Br. Kr. Bag Waste Unprintd.	55.00/ 60.00	60.00/ 65.00	55.00/ —	45.00/ 47.50
No. 1 Groundwood Shvs.	30.00/ 35.00	20.00/ 25.00	17.00/ —	25.00/ —
White Newsblanks	50.00/ 55.00	40.00/ 45.00	30.00/ —	55.00/ —
No. 1 Soft White Shvs.	60.00/ 65.00	55.00/ 65.00	50.00/ —	75.00/ —
Super Soft White Shvs.	65.00/ 75.00	70.00/ 80.00	60.00/ —	— / —
Hd. White Shvs.	85.00/ 90.00	80.00/ 90.00	75.00/ —	80.00/ —
Hd. White Env. Cuts	95.00/100.00	100.00/105.00	80.00/ —	103.00/ —
Col. Tab. Cards	50.00/ 62.50	54.50/ 59.50	47.50/ —	35.00/ —
Manila Tab. Cards	72.50/ 77.50	67.50/ 72.50	70.00/ —	75.00/ —
No. 1 Col. Ledger	35.00/ 40.00	32.50/ 35.00	42.50/ —	23.00/ —
White Ledger	55.00/ 57.50	50.00/ 55.00	50.00/ —	40.00/ 45.00
Mixed Book & Mag.†	14.00/ 15.00	— / —	10.50/ —	/ —
No. 1 Books‡	15.00/ 20.00	18.00/ 22.00	27.50/ —	8.00/ 12.00

† Includes Time & Life; no coarse groundwood. ‡ Not to exceed 10% of groundwood.

things look better...

with DYLEX® latices in the paper coating

KOPPERS

With Koppers new series of latices in your coatings, paper has unexcelled printability. Clear, sharp, true-to-life reproductions. Turn the page and find out why!

things look better...

with DYLEX latices in paper coatings because they coat *smoothly;* they won't lump or streak . . . papers print clearly without defects. Type and color illustrations show off with remarkable sharpness. DYLEX latices have excellent mechanical stability and they *blend* perfectly with other coating additives. They're less foamy, have less odor, are easy to apply, and they strengthen coated papers for today's modern high-speed printing presses.

Koppers produces DYLEX K-52 for conventional clay coatings; DYLEX K-54 for superior adhesive qualities; and DYLEX K-85 for specialty papers requiring extremely high gloss. For more detailed information on how these latices can make smoother, stronger paperboard coatings for you, write Koppers Company, Inc., Plastics Division, Dept. 166, Pittsburgh 19, Pennsylvania.

KOPPERS PLASTICS KOPPERS

Fabric and fashion illustrations courtesy of E. I. du Pont de Nemours & Co., Inc.

This insert is printed on Polar Offset Enamel—manufactured by Oxford Paper Company, a prominent user of DYLEX K-54 latex for paper coating.

Aerial view left shows how timber harvesting by Puget plans for tomorrow's pulp requirements. Staggered cutting blocks, surrounded by standing green timber, amply provide young seedlings for natural regeneration of trees.

Close-up above shows how nitrogen soil inoculation pays dividends in more vigorous tree growth. Needles above thumb are pre-fertilization result; longer, lighter green needles below thumb are direct result of Puget's fertilization practices.

PUGET PULP *

...strong, clean, uniform and white

PUGET SOUND PULP & TIMBER CO.

BELLINGHAM • WASHINGTON

* A SOFTWOOD CHLORINE DIOXIDE BLEACHED SULPHITE PULP

now in preparation . . .

ANNUAIRE DE LA PAPETERIE FRANCAISE

[DIRECTORY OF THE FRENCH PAPER INDUSTRY]

1962 EDITION

The Directory

- lists all French pulp and paper mills, executives, equipment, capacity, type of paper produced.
- contains MAPS of each department in France, with mill locations.
- lists mill suppliers, by products and services.
- lists converters, with products manufactured.
- contains names, addresses, and executive directors of all Associations serving the paper and allied industries.

PAPER INDUSTRY SUPPLIERS:

Make yourselves known to European buyers by placing your advertising in the only directory of the French paper industry.

This directory was founded in 1879, and enjoys wide distribution over the Common Market. It will be on the desks of all European executives in the paper industries.

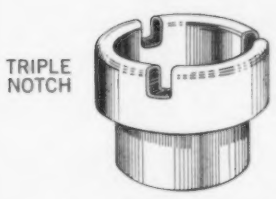
Cost of one page (5" or 125 m/m wide by 7½" or 190 m/m deep) in black and red, $100. This includes a copy of the Directory.

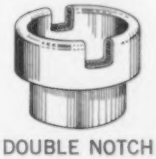
For further information or to place order, write:

FRANCE AND THE FRENCH UNION	9 Rue Lagrange, Paris 5e
UNITED KINGDOM	John Eckford-Prossor Stafford House, Norfolk Street, Strand London W.C. 2
GERMANY	Herbert Morgenbesser Kohlgarten 3, Hamburg FU
EUROPE, OTHER THAN ABOVE	John Ashcraft Care of La Papeterie 9 Rue Lagrange, Paris 5e
U.S. AND OTHER COUNTRIES	Lockwood Trade Journal Company 49 West 45th Street, New York 36, N.Y.

The French monthly publication LA PAPETERIE and the DIRECTORY OF THE FRENCH PAPER INDUSTRY are published by the Societé Ancienne MAISON LHOMME & ARGY, 9 Rue Lagrange, Paris. The French company has specialized for 85 years in the paper industry.

...from the world's largest manufacturer of paper tubes and cores!





SONOCO METAL ENDS

All notched Sonoco Metal Ends are constructed with steel lugs securely welded in place. Notches are standard 11/16" x 11/16". Ends may be purchased attached to cores, or separately in bulk. Sizes and weights available upon request.

Sonoco combines research, 60 years' experience and completely integrated manufacturing facilities to produce the type paper mill core you want and need. As a result, Sonoco meets the industry demand for cores which possess *extraordinarly* high torque and crush strength to withstand repeated abrupt starts and stops in winding operations and on modern printing presses. Long-lasting Sonoco cores deliver uniform, trouble-free performance that saves money in use.

Sonoco paper mill cores are available in two grades . . . premium-grade Durolene and economical Duro. Both can be supplied with metal ends in standard sizes or without metal ends in all diameters. Sonoco also furnishes a complete line of metal end core machinery and core cutters.

Regardless of your core needs, you'll get more for your core dollar from SONOCO in service, quality and economy. Call or write today!

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Paper Mill Cores

SONOCO PRODUCTS COMPANY, HARTSVILLE, SOUTH CAROLINA
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Holyoke, Mass. • Phillipsburg, N.J. • Longview, Texas • Philadelphia, Pa.
La Puente, Calif. • Fremont, Calif. • Atlanta, Ga. • Richmond, Va.
MEXICO: Mexico, D.F. • **CANADA:** Brantford, Ont. • Granby, Quebec

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SONOCO PRODUCTS COMPANY
HARTSVILLE, SOUTH CAROLINA

Please send me the free descriptive brochure on Sonoco Paper Mill Cores.

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COMPANY_____

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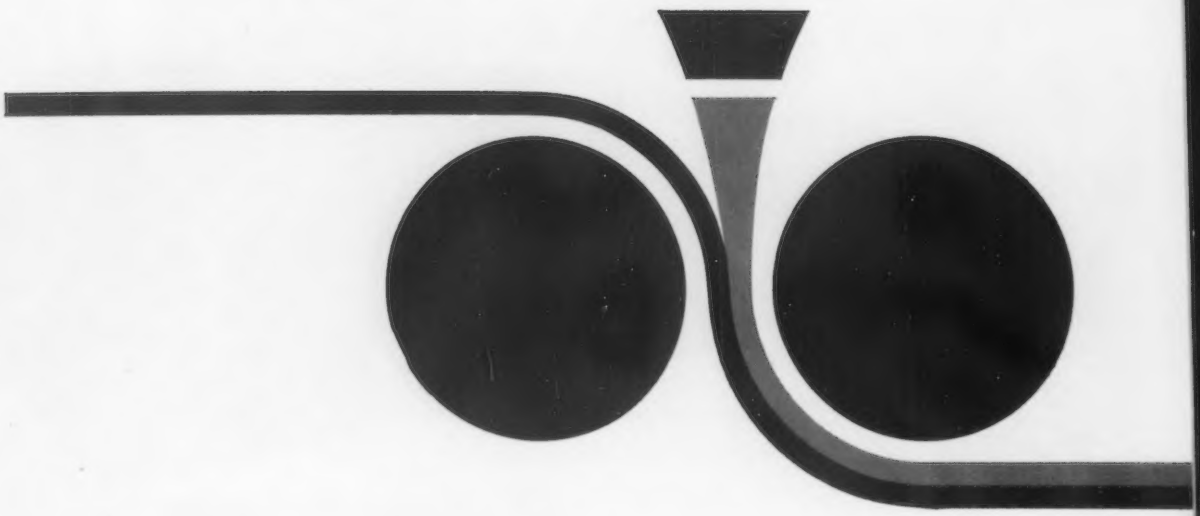


Extruded polyethylene coatings

...DOW RESINS IN A RANGE OF MELT INDEXES AND DENSITIES

Dow polyethylene resins offer converters a complete line of extrusion coatings . . . in a wide range of melt indexes, densities, and performance characteristics . . . to cover all standard substrates—paper, film, foil.

For the convenience of users, Dow has adopted a new numbering system for rapid identification of density and melt index of its coatings grade resins: "CG" indicates *coatings grade,* the first two digits indicate *resin density,* and the last two, *melt index.* Suffixes indicate compounding variable, e.g., "B" denotes black pigmentation.

For detailed information, write to
The Dow Chemical Company, Coating Sales Dept. 1935DP10-23, Midland, Mich.

CG 1705

Versatile, low-density resin exhibits excellent heat seal characteristics and barrier properties. Particularly suited to flexible packaging.

CG 1705B

Black pigmented polyethylene for good weathering properties. Applications include construction papers, mulch papers, etc. Extrusion and performance characteristics comparable to CG 1705.

CG 3002

Medium density resin for further increase in density-dependence properties—improved barrier and higher heat distortion temperature. Suggested for moderate coating speeds and thicknesses with minimum neck-in.

CG 1608

For thin coatings applied at high machine speeds—applications such as sugar pouch, freezer wrap, etc.

CG 1902

Medium to heavy coating weights for moderate speed with minimum neck-in—the strongest, toughest of the low-density resins.

CG 2502

CG 2504

CG 2502 and CG 2504 are 0.925 density resins with melt indexes of 2 and 4 respectively. The lower melt index minimizes neck-in; the higher melt index improves draw down. These resins provide density-improved properties while maintaining excellent extrusion characteristics.

THE DOW CHEMICAL COMPANY DOW Midland, Michigan

PJT NEWS OF SUPPLIERS

CIBA Co., Inc., has appointed William A. Raimond deputy technical director. In this newly created position Dr. Raimond will assist Charles J. Weidmann, CIBA's vice president and technical director.

Dr. Raimond has been associated with American Cyanamid Co. since 1942. Prior to this, he was a chemistry instructor at Rutgers University. With Cyanamid he most recently served as technical assistant to the president of Arizona Chemical Co. (jointly owned concern of American Cyanamid and International Paper) where he was responsible for the research and development programs. Prior to this post, he served American Cyanamid as technical director of the Engineering and Construction Division, technical director of the Organic Chemicals Division, technical director Dyes and Related Products Division, chief chemist in the Vat Dye Department and as research chemist.

Before starting his new appointment, Dr. Raimond will spend several months at CIBA, Ltd., Basle.

Stanley Steel Strapping, division of The Stanley Works, New Britain, Conn., has announced two engineering appointments.

Ira G. Cruckshank was appointed to the new post of manager of engineering. He will direct and coordinate the activities of the Product Engineering, Field Engineering, and Quality Control departments.

Mr. Cruckshank, who had been with the General Electric Co. since 1946, comes to Stanley from the position of manager of manufacturing engineering for G.E.'s Hotpoint Division, Kitchen Appliance department.

Donald T. Armington was appointed to the new post of chief field engineer. His responsibilities will be to provide technical assistance to the sales department in the investigation and installation of packaging and materials handling systems for all industries.

An employee of The Stanley Works since 1953, Mr. Armington has served as a time study, methods and materials handling engineer.

National Starch and Chemical Corp. has revealed that land has been purchased on which to build a previously announced 4 million-dollar vinyl acetate plant. The annual capacity of the new chemical facility will be 45,000,000 lbs., most of which will be for captive use.

The site selected is at Seadrift, Texas. Donald Pascal, president, said that National will purchase its acetylene, a major raw material used in the production of vinyl acetate, from The Olefins Co., a division of Union Carbide Corp.

Construction of the new plant will commence late this year, and the new

DeZURIK AGAIN...IN CONSISTENCY-REGULATION LEADERSHIP!!

DeZurik's new Pipeline Consistency Regulator is the talk of the industry. It's a compact regulator and offers all the advantages of DeZurik's motor-driven sensing element! The DeZurik rotating sensor, through millions of hours of service clearly demonstrated its freedom from fouling and from stock hang-up. The stringiest stock is controlled accurately without the plug-ups occurring on stationary feelers.

HOW ABOUT INSTALLATION? Installation is easy, quick, trim and economical. Requires virtually no extra space, needs no extra supports.

WHAT ABOUT OPERATION? The DeZurik Compact Pipeline Regulator has the finest recorder-controller instrumentation, adaptable readily to your specific requirements. No shut-downs, practically no maintenance.

INTERESTED? . . . . . Call the DeZurik representative in your area, or write to us . . .

DeZURIK CORPORATION
SARTELL, MINNESOTA

facility is expected to be in operation late in 1962. Construction will be handled by Brown & Root, Inc., Houston, Texas.

National is a major producer of vinyl acetate polymers and copolymers which are supplied to the paper, and other industries.

G. F. Schuning

D. P. Newcombe

J. O. Ross Engineering Division, Midland-Ross Corp., has named George F. Schuning general sales manager.

One of the chief responsibilities in his new position is the management of the eight Ross sales offices across the U.S.

Mr. Schuning received his chemical engineering degree from the University of Wisconsin and joined the sales engineering staff at the Chicago office of Ross.

Manchester Machine Co., Middletown, Ohio, announces that Douglas P. Newcombe has recently joined the company as regional manager, sales engineering—North Central States. Mr. Newcombe will represent Manchester in Wisconsin, Minnesota, Iowa, Michigan and northern Illinois. He was formerly plant engineer for Crocker, Burbank & Co. and sales engineer for the Orton Corp.

Mr. Newcombe will headquarter in Appleton, Wis., and will work directly with paper companies in the development of specifications for Manchester equipment proposals and the collection of field engineering data. He will also assist in the installation of new Manchester equipment, advising customers on its operation and providing other customer services.

Horton Manufacturing Co., Inc., Minneapolis, Minn., has appointed the Willard Engineering Co. of Los Angeles its sales representative for Southern California. Horton manufactures clutches, brakes and auxiliary equipment for the paper industry.

The Willard company is headed by Robert Willard and is headquartered at 2709 South Hill, Los Angeles, Calif.

Sandvik Steel, Inc., Fair Lawn, N. J., has established a new branch office in Seattle, Wash., for the sale of Sandvik stainless seamless tubing, specialty spring steels and springs.

The new office will be under the direction of Raymond F. Nelson, who has been named district manager for Sandvik sales in Washington, Oregon, Idaho, Montana, Wyoming and Alaska. The office is located at 2208 White-Henry-Stuart Building, Seattle 1, Wash.

Penick & Ford, Ltd., Corn Refining Division, has promoted Frank Ware to the position of paper mill representative. Mr. Ware will call on paper and corrugating mills in Chicago, Wisconsin and the Upper Peninsula of Michigan. He has been with Penick & Ford in the Technical Sales Service department since 1958.

Mr. Ware was formerly associated with various paper and chemical companies in technical and sales capacities. He received his B.S. degree in chemistry from Kalamazoo College.

R. L. Post has been named paper mill representative. He will service paper mills, bag plants and corrugating plants in the Pacific Northwest.

Previously employed by the Kalamazoo Paper Co. and the Columbia River Paper Mills, Mr. Post holds a B.S. degree in paper technology from Western Michigan University.

Parsons & Whittemore, Inc., has appointed Samuel Efron executive vice president.

As partner in the Washington, D. C., law firm of Surrey, Karasik,

Frank Ware

Samuel Efron

Gould and Efron, Mr. Efron has served since 1954 as counsel to Parsons & Whittemore, Inc., and its affiliates within the Parsons & Whittemore-Lyddon Organization, which is one of the largest groups serving the pulp and paper industry in the planning and building of mills.

Before entering private law practice, Mr. Efron served as counsel to a number of Government agencies. His last Government post was Assistant General Counsel for International Affairs of the Department of Defense. He is a graduate of Lehigh University and Harvard Law School.

ideas and news:

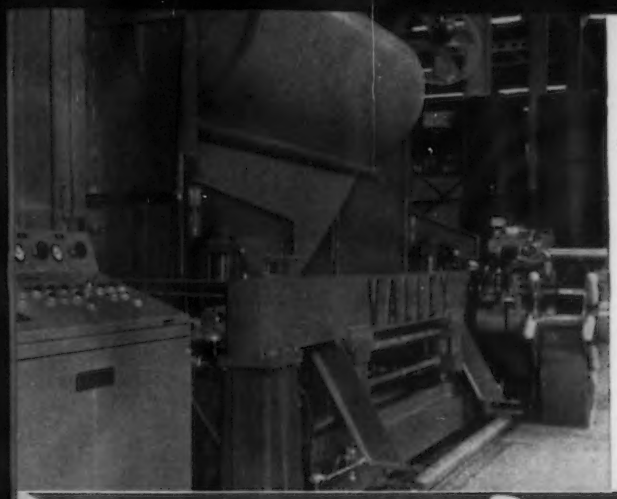
Open motor shrugs off everything but work: This 5-hp SUPER-SEAL motor performs with unfailing dependability . . . even though covered with a foamy pulp mixture. Twice a day, it gets cleaned — with a hose. POXEAL insulation resists moisture, dust and most contaminants . . . enabled this open motor to replace a TEFC motor that had to be frequently rewound.

Control centers cut costs: You save space, simplify wiring and reduce inspection and maintenance expenses with new Allis-Chalmers low-voltage motor control centers. Plug-in terminal blocks and drawout construction cut inspection time by making it quick and easy to withdraw or remove control units. Pushbuttons and pilot lights are mounted on the removable frames to eliminate failures common with hinged wiring. Special connectors make it impossible for bus connections to loosen. Extra-heavy bus bracing makes additional bracing unnecessary when you add capacity.

Which of these productive ideas could be working for you?

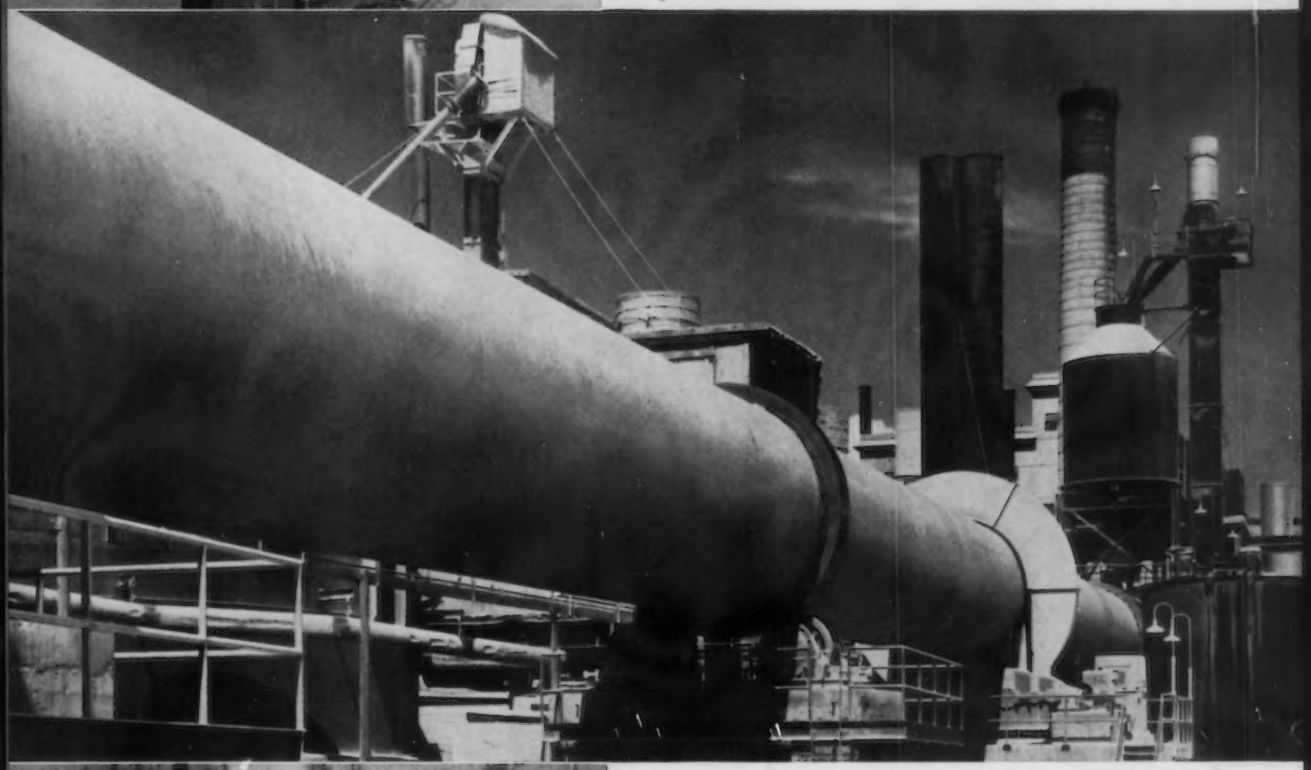
An open motor that shrugs off a soaking. A system that wraps rolls automatically. A pump that instantly matches flow to demand. These examples demonstrate the extra value that is a standard with A-C... the greater efficiency and the added productivity which are yours when you buy A-C products, systems and services. Call your Allis-Chalmers representative for details on A-C "worth-more" features. Or write Allis-Chalmers, Industries Group, 903 South 70th Street, Milwaukee 1, Wisconsin.

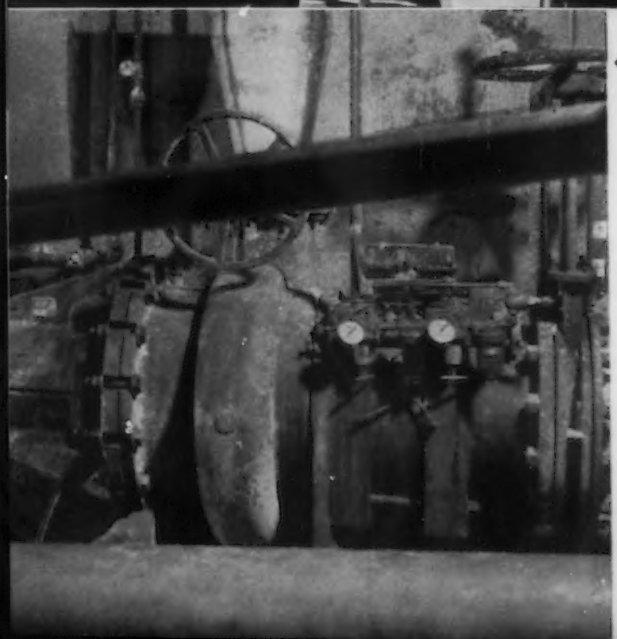
Super-Seal, Poxeal, and ACAP are Allis-Chalmers trademarks.



New "pushbutton" system wraps a roll-a-minute: Valley Iron Works Corporation (an A-C affiliate) has developed an automatic system that can wrap more than 60 rolls an hour. It cuts wrapping paper to proper size, applies it to the roll, and crimps the ends for application of headers. The system can handle rolls of varying sizes in succession — face lengths of 7 to 112 inches, diameters from 15 to 42 inches — other sizes are available.

This 275-ft "oven" bakes a batch of savings: This giant Allis-Chalmers rotary kiln gulps in huge quantities of waste lime sludge . . . converts it into usable lime of uniform high quality. Because of a unique feeding system, this unit can process both sludge and raw limestone (if needed) simultaneously.



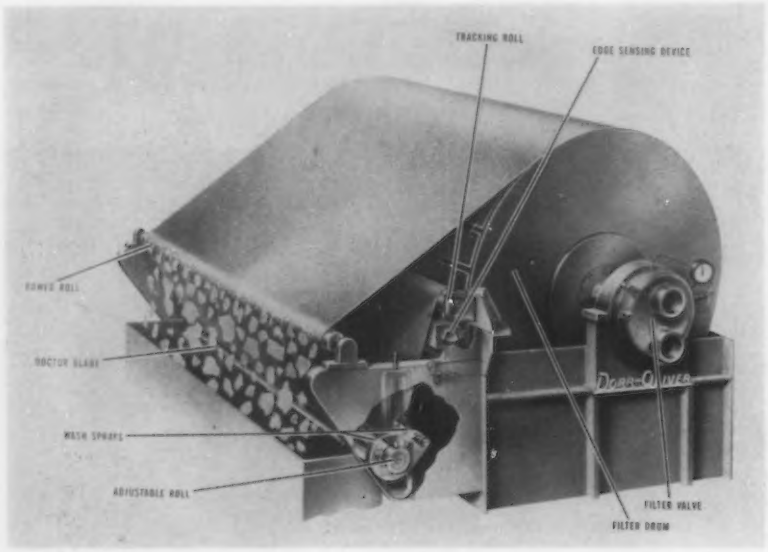


***ACAP* pump regulates flow instantly** . . . without valves or varying pump speed. Proven ACAP (Adjustable Capacity, Adjustable Pressure) principle with internal pneumatic control automatically matches flow to demand. Regulation of flow through changing impeller clearances eliminates binding, plugging, saves power, allows systems to operate at high efficiency regardless of demand.

ALLIS-CHALMERS PRODUCTS FOR THE PAPER INDUSTRY: Look to Allis-Chalmers for compressors; controls; earth-moving equipment; industrial systems; lift trucks; motors; papermaking machinery; pumps; rectifiers; electrical generation and distribution equipment; tractors; transformers; unit substations; valves; water-conditioning equipment. A-1544

ALLIS-CHALMERS

NEW EQUIPMENT & SUPPLIES



Belt Filter Useful In Kraft Liquor Clarification

A belt filter design, especially applicable in black, green and white liquor clarification, sludge dewatering, etc., has been introduced in a full range of sizes and materials by Dorr-Oliver Inc., Stamford, Conn.

Known as the D-O Webtrol Filter, the unit applies dependable web tracking control and web spreading equipment to a version of the basic Oliver vacuum drum filter design. A bowed roll spreads and smooths the fabric, holding the medium flat against the filter drum under uniform tension. A sensitive edge-position device operates through a modern feedback circuit to adjust continuously a tracking roll located so that it can position the belt directly on the filter drum.

The Webtrol Filter is said to be particularly applicable to slurries which tend to blind the cloth, and to operations where a sufficiently high filtrate clarity cannot be obtained with the usual types of vacuum drum filters. In many cases, the Webtrol Filter can be used effectively where a precoat filter would normally be considered.

While belt vacuum filters have had some success under limited conditions and for limited periods of operation, faulty tracking, cloth wrinkling, and high cloth wear have limited their applications.

The D-O Webtrol Filter, however, uses a three-roll system that is claimed to provide positive belt control, continuous wrinkle removal, constant Hydrastatic cloth backwash, and a friction-free belt path. The filter medium passes over a bowed discharge roll, an adjustable roll, and a tracking roll in that sequence.

The bowed roll removes wrinkles by spreading the web, simultaneously providing initial separation of the cake for discharge.

It delivers a wrinkle-free belt to the adjustable washing roll. At this point in the web travel, both high velocity jet sprays and hydrostatic washing are used for thorough removal of surface solids.

The clean medium then travels over a continuously operating tracking roll which is suspended so that it both moves the belt and changes its direction of travel whenever the alignment. All three of the rolls have edge sensing device indicates a misrotating surfaces and are mounted on lubricated bearings to eliminate friction and minimize cloth wear.

Most varieties of cloth media can be fabricated into belts from standard textile widths for use on the Webtrol Filter.

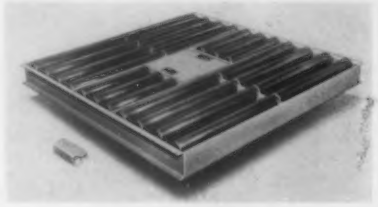
Steel, alloy and stainless construction are available, as well as a wide variety of metals and synthetics for medium support grids and tank linings. Dorr-Oliver, Inc., Stamford, Conn.

Belting with Anti-Static Effect Developed

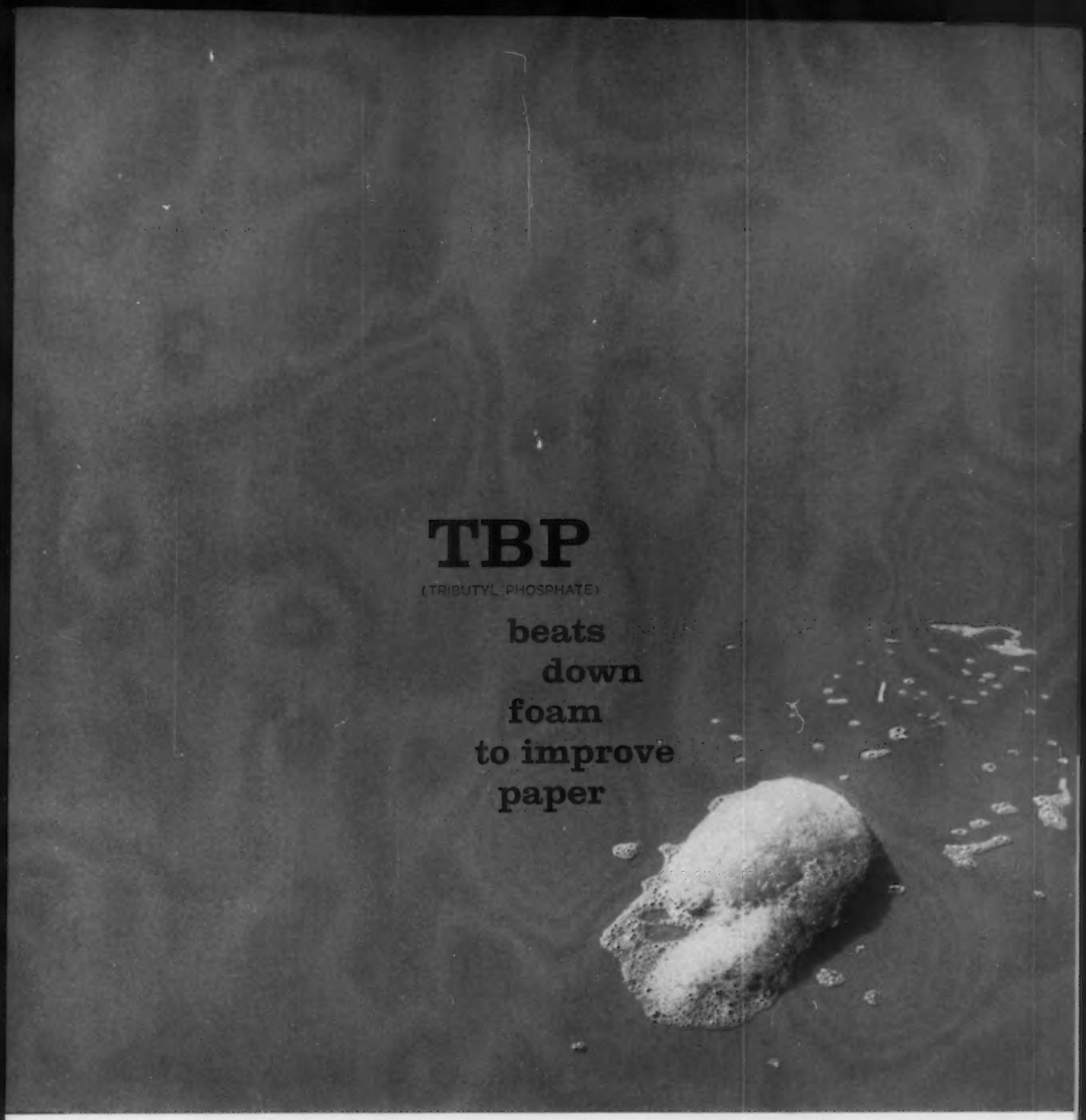
Extremultus, a supplier of power transmission belting, has developed a special "Non-el-Stat" belting for use in potentially explosive and combustible locations. Laboratory and field trials by Extremultus on both new belts and belts which had been run for some time were confirmed by a leading scientific testing organization through the use of recently developed portable electrostatic volt meters. In order to help promote plant safety programs, Extremultus is now making these new meters available for in-plant tests throughout the country.

During its research program, Extremultus conducted tests with many different methods of incorporating static dissipating properties into a transmission belt. Discarding conventional methods generally used today, Extremultus chose to bond the conductive layer into the belt itself for permanent anti-static effect.

Applications of Extremultus "Non-el-Stat" belting range from installations having highly explosive gases to atmospheres which are filled with dangerously combustible dusts. For your complete



PNEUMATIC LIFT TURNTABLE, Type 4, with custom conveyor section changes direction of flow, to power lift conveyor section with load, then manually rotates and lowers. Conveyor lift is 5 inches. Minimum height overall 15 inches, full rotation either direction. Rated lifting capacity at 80 p.s.i. air: 3 ft. sections 2700 lbs., 4 ft. sections 2600 lbs., 5 ft. sections 2500 lbs. Available in other forms. Specialty Equipment Corp., 290 Park Ave., Worcester 9, Mass.



Foam in paper coating mixtures often causes pits and blemishes in the finished product. Major manufacturers of paper, such as the S. D. Warren Company, insure against such defects by using TBP in their pigment coating formulations.

FMC's Tributyl Phosphate is an economical and reliable anti-foam agent. A very small quantity in the coating mixture is sufficient to reduce surface tension of bubbles and suppress foaming. This effective, low-cost additive plays a vital part in achieving a smooth, uniform surface. It leaves no harmful residue or odors on the paper.

For data sheet, price information and a list of representatives with warehouse stocks of TBP write to:

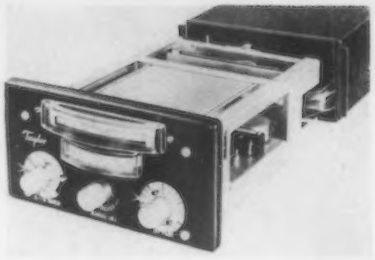
fmc CORPORATION ®

CHEMICALS AND PLASTICS DIVISION

161 East 42nd Street, New York 17, N.Y.

information bulletin on the safe use of power transmission belting in combustible or explosive atmospheres, and information on how to arrange for an in-plant test of your own belting, write Extremultus, Inc., 130 Coolidge Avenue, Englewood, N. J.

Electronic Control Stations Have Full Scale Indication



Electronic Indicating Control Stations for 24 volt and 1 volt systems are being announced by Taylor Instrument Companies as an expansion to their existing electronic line. The 701K series of control stations feature large, full scale process indication, a complete manual power supply, and a compact design for panel mounting. In addition, the chassis may be partially removed from its case while still on control, thus permitting inspection or maintenance.

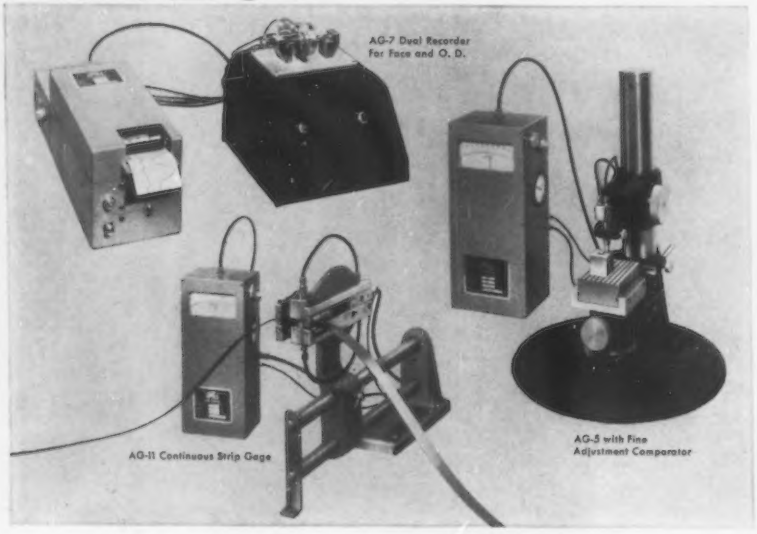
A large 3 inch process meter and a 2 inch output meter are centered on the front panel. Calibration of both meters is based on 1-5 ma d.c. A multi-position switch permits either automatic or manual control modes, as well as providing for balancing of the controller's operational amplifier. The fourth position of the switch allows adjustments to be made which will give a bumpless transfer from automatic to manual control.

The non-indicating version known as the 701N series does not have the process indication meter but is the same in other respects.

Optional features available include a 1 per cent process indication meter (2 per cent is standard), control point detection (for switching from manual to automatic control with no change in output), provision for cascade service, and a manual loading station only.

Taylor Instrument Companies, Rochester 1, N. Y.

AMES *Masters of Measurement*



ACCU-FLOW AIR GAGING EQUIPMENT

The new line of ACCU-FLOW air gages developed by B. C. Ames includes several patented components, including nozzles and pressure indicators, which give these gages unusual range and exceptional linearity.

Special Models are Available for Checking: outside and inside diameters, center distances, flatness, roundness, hole depths and continuous non-contact measuring or comparing of paper, metals, plastic films, etc.

Ames ACCU-FLOW Air Gages are providing the answer to many measuring problems that were once considered impossible to solve. For complete information on the entire line of Ames air gaging equipment, write for new ACCU-FLOW folder. *You're asking for the best when you specify Ames!*

B. C. AMES CO., Waltham 54, Mass. Representatives in Principal Cities—
In Canada, H. C. Burton Co., 166 Rebecca Street, Hamilton.

B.C. AMES CO.
MANUFACTURERS OF MICROMETER DIAL INDICATORS, DIAL GAUGES, ACCU-FLOW AIR GAGES, PORTABLE TRANSISTORIZED COMPARATORS

Measures Sheet Moisture of Web, or in Stack

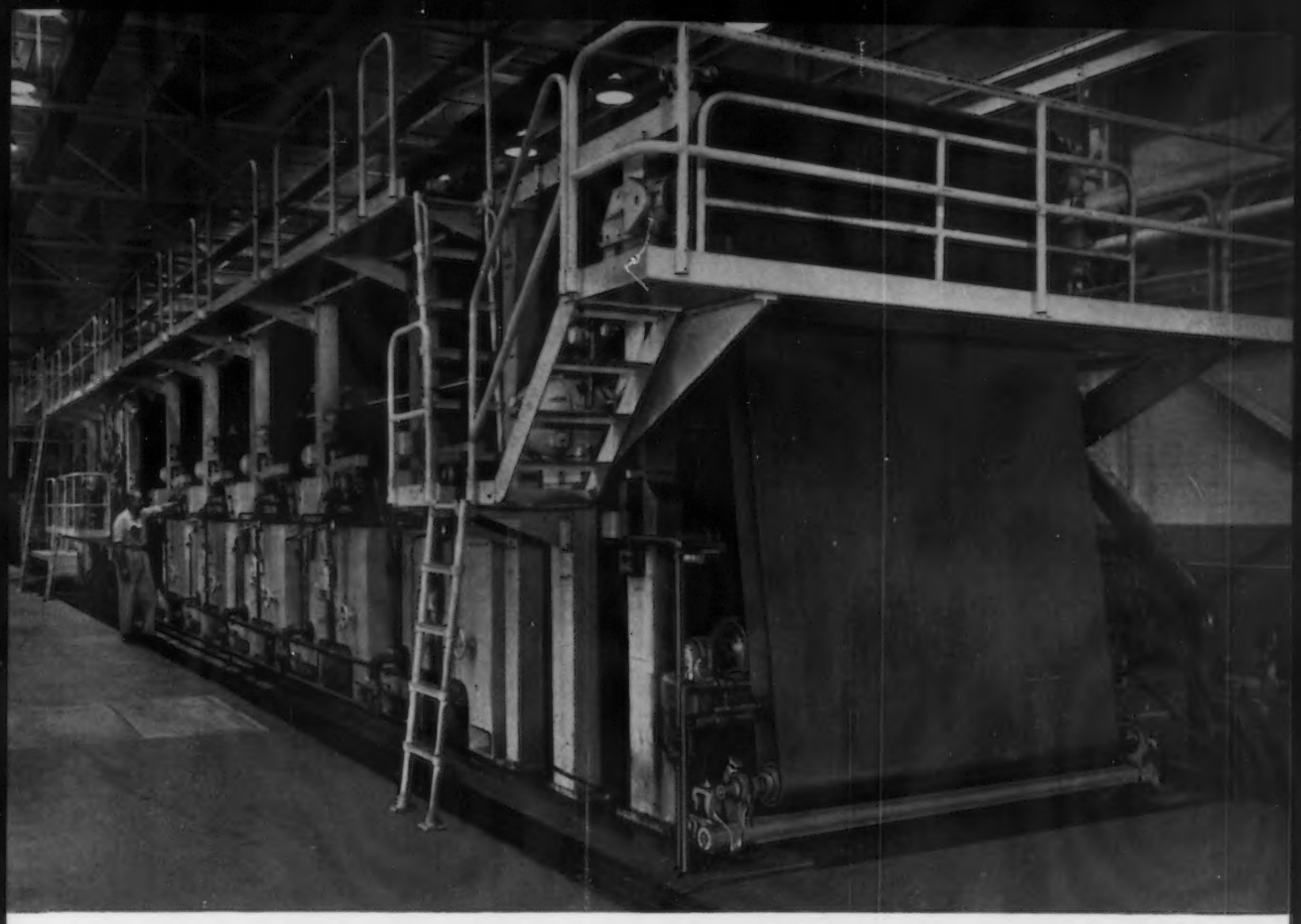
Accurate prediction of the moisture content in paper, at the point of use, can be made when either the

Hygro-Champ or Saber-Champ systems are used.

The Hygro-Champ system employs a sample-clamping device, an electronic indicator, and a connecting cable. A recorder may be used instead of the indicator if a permanent record is desired.

Under the registered trade-name of "Hygro-Champ," the device was developed jointly by Hygrodynamics, Inc., 949 Selim Road, Silver Spring, Maryland, and the Champion Paper and Fibre Co., Hamilton, Ohio. The principle of operation is based on the Aminco-Duncome Electric Hygrometer system, combined with the well-known Thermistor, which provides humidity and temperature measurements. The device has a humidity range from 18 to 61 per cent relative humidity (at 80°F), and a temperature range from 40° to 120°F. Calibration accuracy is ±1.5 per cent R.H., and ±2°F temperature.

Water content in skidded paper stacks can be determined with a 14-



96", 5-cylinder Manchester paper machine now in operation at Case Brothers mill, Brattleboro, Vermont.

THIS MANCHESTER PAPER MACHINE IS THE HEART OF CASE BROTHERS NEW MODEL MILL

The Case Brothers model mill at Brattleboro, producing Genuine and Imitation Pressboard, is the first ever designed exclusively for the manufacture of pressboard products. The heart of this new mill is a special-performance, versatile paper machine that Manchester designed, engineered and built to the specifications of Case Brothers and their consulting engineer, Chas. T. Main, Inc., Boston, Mass.

The new 5-cylinder Manchester machine features an 8 to 1 speed range, permitting extreme versatility. It is designed to produce Genuine Pressboard, Imitation Pressboard and specialties. Provisions have been made for future expansion of the machine to 7 vats, and to double the production capacity. All 5 present vats are equipped with stainless steel taper flow inlets. Suction drum press, primary and main presses are pneumatically loaded.

To eliminate need for a floor pit, Manchester elevated the rebuilt two-high dryer section. Open side calenders provide air-over-hydraulic loading and electric lifting for precise pressure adjustments of all rolls in each stack. Other Manchester components include pneumatic, horizontal track reel, and air-controlled, 2-drum winder, equipped with hydraulic roll ejector and roll unloading table. A center flat belt, cone-pulley type machine drive—with steam turbine prime mover on the line shaft—is used.

"Since start-up, the performance of our Manchester paper board machine has fully matched our expectations," reports Robert Case Dennison, Vice President—Production, Case Brothers, Inc. "It's doing the kind of job that we counted on in the planning of this new mill."

You, too, are assured of the profit-making machine installation you want when you call in the Man from Manchester. ~ ~ **THE MANCHESTER MACHINE COMPANY, MIDDLETOWN, OHIO.**

Manchester . . . profit builders for papermakers

THE MANCHESTER MACHINE COMPANY

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Look to the Southeast Coastal 6!

When you build your new plant in Virginia, North or South Carolina, Georgia, Florida or Alabama, you'll benefit from expanding markets as well as from abundant timber and good rivers.

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Direct inquiries to:
R. P. JOBB
Assistant Vice-President
Department G-431
Atlantic Coast Line Railroad
Jacksonville, Florida

ATLANTIC COAST LINE RAILROAD

. . . serving the Southeast Coastal 6

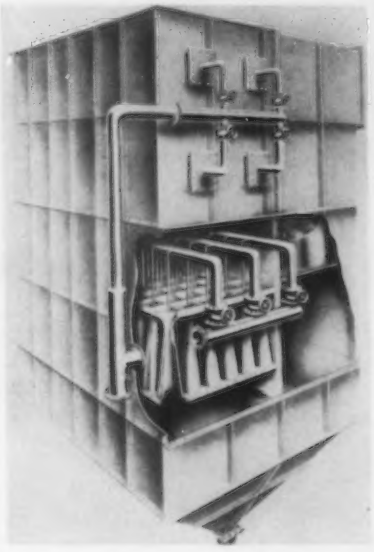
inch stainless-steel saber-type probe, using the electric hygrometer system of humidity measurement, to be marketed under the registered tradename of "Saber-Champ."

The Saber-Champ houses a humidity-temperature sensor, developed specifically for paper-testing instruments. The sensor covers a humidity range of 18 to 61 per cent relative humidity at 80°F. and a temperature range of 40 to 140°F. Temperature sensitivity is ±2°F. Calibration is accurate to ±1.5 per cent relative humidity.

The Saber-Champ was also developed jointly by Champion Papers, Inc., Hamilton, Ohio, and Hygrodynamics, Inc.

Venturi Scrubber Cleans Gases of Entrained Solids

Buell Engineering Co., Inc., announces a venturi scrubber for separating entrained solids from



high-temperature gases. The Buell scrubber is manufactured under an exclusive U. S. license from Waagner-Biro, Austria, and offers advantages of low pressure drop and low water requirements. These in turn result in lower power requirements and lower operating costs.

The scrubber subjects the exhaust gases to a double scrubbing action as they pass through a bank of venturis. At each venturi, a nozzle sprays a cone of water into the belled venturi entry, and the gas receives its first scrubbing as it passes through this wall of spray.

The gas receives its second scrubbing within the venturi as it passes

Avoid needless reprocessing costs with Texaco's new "Stop Loss" program

INCREASE NET PROFITS BY AS MUCH AS 8.8%

Don't overlook the importance of organized lubrication as a factor in minimizing reprocessing losses. Texaco's new "Stop Loss" Program not only helps you produce more saleable paper, but also extends bearing life . . . cuts downtime . . . even reduces lubricant inventories and purchasing costs.

This unique Program can cut your over-all maintenance costs by as much as 10%. *These savings can increase net profits by as much as 8.8% per year.**

How a "Stop Loss" Program works—Basically, a "Stop Loss" Program is concerned with modernizing and controlling lubrication practices—from purchasing right through actual application.

Texaco lubrication engineers help specify the right lubricant and lubrication interval for every piece of equipment—from woodyard to machine shop. Particular attention is given to such paper mill problems as wet and dry end lubrication and water contamination. Lubrication responsibility is delegated . . . a workable system of lubrication control is set up.

For full details on how a "Stop Loss" Program can fit into your operation and earn dividends for you, write: Texaco Inc., 135 E. 42nd St., N.Y. 17, N.Y., Dept. PT-60.

***The U. S. Department of Commerce estimates that a paper mill doing a $10,000,000 yearly business will spend about $650,000 for maintenance. A 10% reduction in maintenance costs would amount to $65,000. Assume that profits average 7.34%—or $734,000. By adding the 10% maintenance saving, profits now total $799,000 . . . an 8.8% increase.**

Tune In: Texaco Huntley-Brinkley Report, Mon. Through Fri.-NBC-TV.

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LUBRICATION IS A MAJOR FACTOR IN COST CONTROL

through a second inverted cone formed as the water rebounds from the belled mouth into the throat of the venturi. This deflection of the water decreases its velocity and breaks it into smaller droplets. While this takes place, the velocities of the gas and entrained solids are increased, due to the narrowing throat of the venturi. Thus, the faster moving gas steam passes through the slower moving water spray and is subjected to the second scrubbing action. The scrubber is claimed to clean gases of dust particles as small as 0.05 microns at efficiencies of 99 per cent plus. Additional information on the new scrubber may be obtained from Buell Engineering Co., Inc., 123 William Street, New York, N. Y.

Viscometer Usable In Field or Lab

S and A Products is introducing the Viscotester—said to be first portable, direct-reading, self-contained

instrument for measuring the viscosity of liquids and pastes.

In operation, a stainless-steel rotor, coupled to the underside of the instrument, is immersed into the test sample and the power switch energized. The rotor turns the direct-reading indicator-pointer so that the viscosity reading in poises can be read on the logarithmically-calibrated scale. No conversion or calibration charts are required. Two rotors are furnished: No. 1—3-150 poises: No. 2—100-4000 poises; other ranges will be available shortly, say S and A spokesmen. The Viscotester comes complete with two rotors, four penlight batteries, external power-supply contacts, laboratory-stand connection, and leather case with carrying strap. Specifications are accuracy: ±5 per cent full-scale range; scale length: 3¼ inches; overall size: 7 x 3¾ x 1½ inches. For further information, write S and A Products Co., 120 East 19th Street, Brooklyn, 26, N. Y.

Line of Resins for Extrusion Coating

Seven polyethylene resins designed for extrusion coating and lamination of paper, paperboard, foil and films, are announced by The Dow Chemical Co.

Designated "CG," for Coating Grade, the resins vary in melt index and density to contribute specific properties needed in different applications.

Packaging is a prime sales target in this relatively new coating field, according to Dow spokesmen. They said package applications for these resins can range from multi-wall bags and boil-in-bag pouches to milk carton stock and overwraps.

The Dow polyethylene coating grade resins are CG 1902, CG 1705, CG 1705-B, CG 1608, CG 2502, CG 2504, and CG 3002. The first two numbers indicate density; the last digit approximates melt index. Alphabet suffixes denote compounding variables; "B," for example, refers to black pigmentation. Write Dow Chemical Co., Midland, Mich., for further information.

Figures of the Week

PAPER PRODUCTION RATIO REPORT—American Paper & Pulp Assn. Figures

(Production as per cent of normal capacity)

COMPARATIVE WEEKLY SUMMARIES

	Sept. 9	Sept. 16	Sept. 23	Sept. 30	Oct. 7
1961	70.1	94.3r	93.1r	94.8r	92.0
	Sept. 10	Sept. 17	Sept. 24	Oct. 1	Oct. 8
1960	73.1	93.2	93.7	95.5	93.6

r Revised.

COMPARATIVE MONTHLY SUMMARIES

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1960	96.5	97.7	98.1	96.9	97.6	96.1	81.2	91.7	89.1	94.8	92.0	80.2	92.7
1961	87.9	90.0	91.2	91.2	91.6	91.3	78.0	90.5	88.0‡				

‡ Preliminary.

COMPARATIVE YEARLY SUMMARIES

	1954	1955	1956	1957	1958	1959	1960	1961
Year to Date	91.5	95.7	98.4	91.1	86.5	92.2	93.9	89.0
Year Average	91.6	96.2	97.9	90.4	87.0	92.0	92.7	

All of the above data is based on tonnage reported to American Paper and Pulp Association. Does not include mills reporting to National Paperboard Association, except in isolated cases where both paper and paperboard are produced and separate tonnage figures are not readily available.

PAPERBOARD OPERATING RATIOS†—National Paperboard Assn. Figures

COMPARATIVE WEEKLY SUMMARIES

	Sept. 9	Sept. 16	Sept. 23	Sept. 30	Oct. 7
1961	76	98	97	98	97
	Sept. 10	Sept. 17	Sept. 24	Oct. 1	Oct. 8
1960	70	93	93	93	92

COMPARATIVE MONTHLY SUMMARIES

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1960	92	95	94	93	94	92	78	94	88	93	86	73	89
1961	88	89	92	91	92	95	78	95	92				

† *Per cents of operation based on "inch-hours" reported on a 6-day basis to the National Paperboard Association.*

SUMMARY OF PAPERBOARD STATISTICS—National Paperboard Assn. Figures

ITEM	WEEK ENDING Sept. 30, 1961	WEEK ENDING October 7, 1961	CUMULATIVE TO DATE January 1, 1961 to October 7, 1961
% Activity	98%	97%	91%
Total	349,991	349,930	12,586,414
Containerboard—Domestic Use	186,633	189,321	6,457,113
Liner	122,923	128,716	4,302,981
Corrugating Material	58,541	55,317	1,960,168
Chip & Filler Board	5,169	5,288	193,964
Boxboard—Domestic Use	104,870	96,632	3,804,582
Folding	62,487	60,549	2,279,321
Set-Up	10,848	10,667	370,916
Special Food Board	31,535	25,416	1,154,345
Other Paperboard	58,488	63,977	2,324,719
Containerboard Type	25,805	30,258	1,117,909
Boxboard Type	32,683	33,719	1,206,810
Total Orders			
Received	365,915	382,118	
Unfilled End of Week	570,722	598,031	

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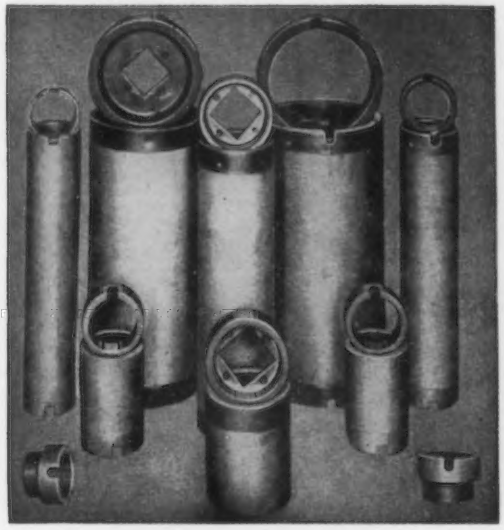

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CORES CAPS

Straight wound paper cores made in sizes from 2" to 10" inside diameter with any thickness wall required.

Long draw protected slot caps of heavy gauge steel in all standard sizes.

Heavy duty caps with reenforced square hole. This patented feature of reenforcement gives added strength and durability.

Samples of caps or cores will be gladly submitted

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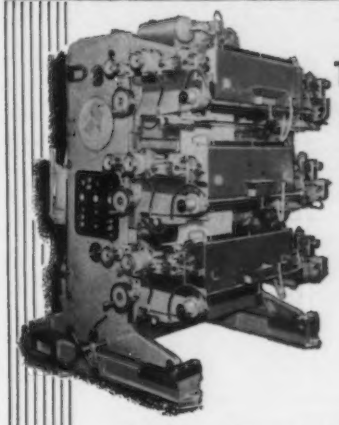
CORINTH, N. Y.

NEW POTDEVIN Multi-Color FLEXOGRAPHIC PRESSES



feature

TIME-SAVING AUTOMATIC CONTROLS

Minimum operator attention . . . rigidity of design . . . precise printing even at 1,000 ft. per minute . . . competitively priced.

Designed as end printers for tandem operation with other web fed equipment. The Series 500 POTDEVIN Presses are available in 21", 26", 32", 36", 38" and 42" web widths.

Write for literature describing the many desirable features built into these new POTDEVIN Presses.

ESTABLISHED IN 1893 POTDEVIN

POTDEVIN MACHINE CO.

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Designers and manufacturers of equipment for Bag Making, Printing, Coating, Laminating, Gluing and Labeling.

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Paper men ourselves, and the only recognized professional specialists in the world in our particular field, we assist responsible paper men to accelerate their careers by uncovering and developing THE SPECIFIC SITUATION that most exactly fits the needs of each individual we serve.

If you seek to better yourself, and your performance to date entitles you to our endorsement, we can and will help you. Contact us in absolute confidence for information regarding procedure.

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RESEARCH CHEMIST OR ENGINEER OR PROCESS ENGINEER

are wanted by NEKOOSA-EDWARDS PAPER COMPANY, one of the most progressive companies in the manufacture of fine business and printing papers and technical specialty papers. They may be recent graduates or men with a few years' experience. Location of the mills is in the heart of central Wisconsin in a small community with outstanding recreational facilities.

RESEARCH CHEMIST OR ENGINEER

Position may be filled by graduate chemist or chemical engineer who has a good background in fundamentals and creative ability. Good opportunity for advancement in either manufacturing or in technical and research departments.

PROCESS ENGINEER

Position may be filled by a graduate in chemical engineering or in paper technology who is interested in working in the paper mill with problems connected with modern, high-speed manufacture of paper. Excellent training for a man interested in going into paper mill supervision or into paper research.

Please send your résumé to:

Employment Director
Nekoosa-Edwards Paper Company
Port Edwards, Wisconsin 0-30

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MECHANICAL ENGINEER

Minimum of ten years experience in design of paper converting equipment, such as Winders, Dryers, Coating Heads, etc., for challenging position in our Engineering Division.

If you desire association with one of the oldest and largest paper convertors in the Northeast, submit resume, including salary requirements, to Mr. H. E. Green, Employment Manager,

DENNISON MANUFACTURING COMPANY, Framingham, Massachusetts. N-6

"ELECTRICAL ENGINEER"

West Coast fine grade paper company has an opening for a graduate electrical engineer preferably with Pulp and Paper background. The individual selected will be expected to assume complete responsibility for all Electrical maintenance and planning for a Pulp & Paper mill.

Salary open.

Mill located in a city which offers excellent living conditions including good schools, housing and recreational facilities. Close to a large metropolitan city yet far enough to not be effected with big city problems.

Please send complete resume and references in first letter. BOX #61-198 care Paper Trade Journal. 0-23

PROJECT ENGINEER

Multi-plant pulp and paper company has opening for Project Engineer offering excellent opportunity in large modern plant located in Alabama. Operations include pulp mill, paper mill, board mill and converting. We are seeking a graduate Mechanical Engineer experienced in this field who has potential to move up within our company. Please send resume of experience, education and salary requirements. Information will be held in confidence, and should be forwarded to:

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1—60" 5 Color Gravure Press
1—48" 6-color Heinrich 4 Flexo 2 Gravure
1—42½" 5-color Staude Gravure Press
1—42" 6 color Heinrich Jet Jr.
1—42" 4-color Hudson Sharp Flexo Press
1—42" 3 color Manhasset Press—3 mos. old
2—35" 2-color Bagprint Flexo Tailprinters
1—33" 6-color Modern Clipper Flexo Press
1—33" 4-color Wolverine Hydro-Printer
1—31½ 4 color Heinrich-Cottrell Flexo
1—31" 4 color Wolverine Flexo press
1—31" 4-color PCM Co's Rotary Oil Ink
1—30" 6-color Kidder celloprinter
1—30" 4 color H.S. Flexo Press
2—30" Henschel C.I. Flexo Presses for Poly
1—28" 2 color Champlain Roto Gravure Press
1—24" Kidder 4 color Film Printer
1—24" 5-color Kidder Celloprinter
1—24" Kidder 4-color flexo
1—24" 4-color Kohlbach Flexo Press with Stanford Web Guide and Tension Controls
1—22½" 3-color Chambon Cup Press
1—22" 4 color Lee Flexo

CAMACHINES

1—82" Type 12
1—72" 10-10A
1—42 - 52 - 62 Type 6
1—32" 26-3A Duplex
1—52" 29-3 Duplex 36" rewind cap.-C.T.—E.E. Guide
2—42" 26-4D Duplex
1—50" 28-3D Duplex

OTHER SLITTERS

1—60" Inman, shear cut
1—52" Meisel (Shear Cut)
1—40" Kidder SH 40" rewind, shear cut
2—40" Beck Razor Blade slitter
1—40" & 1—52" Fales Model "B"
1—24" 1—30", 1—36" & 1—40" Kidder S.L. & 1—36" SLN shear cut

POWER PAPER CUTTERS

SEYBOLDS
84"—50"—40" Precisions
56"-Dayton
44"-Dexter
44"-C&P
44"—10Z & 50"—10Z
44"-Mod. "CF"
75"-Oswego
40"-Mod. "CF"
38"-Oswego
50"-C&P
32"-Oswego
57"-Oswego
50"-Dexter
32"-3Y

BAG MACHINES

1—34" Roto Weldmaster Bag Mach.—Web Guide
1—Simplex #7 & 1—#24 Pouch Machines with Elec. Eye
1—Simplex G-24-7 Side Weld Bag Mach.
1—Nasko F & S Bag Machine Range 2-10"W & 3½ x 18"L.
1—Honsel F & S Bag Mach.—3 color Printer
1—#2 Lockport F & S Plus Range 3—12 lbs.
2—Bagprint B-10 F&S Bag machine
1—Simplex 7-24 Pouch Machine, E/eye
1—Multipath Bag Machine — 4 Color Holweg Printer
1—Model 4 Potdevin Sack Machine
1—#101 Potdevin S.O.S.
1—#26 Matador F&S Bag Machine
2—Roto Model "C"

MISCELLANEOUS MACHINES

3—Gilbertville Log Saws
1—24" International 2-P Waxer
2—42" Reverse Roll Coaters
4—Hayssen 4 & 6 Roll Wrappers
5—Hamblets 100-76-72-64-60 W/Layboy
1—80" Hamblet Duplex W/Layboy
1—55" Beck Model A-5
1—45" & 1—55" Beck (CSH)
1—Potdevin Tin Tie Machine
1—Hudson Sharp Gift Wrap Folder
2—38" x 24" 4-Post Seybold Die Presses
2—Die Cutters—27" x 38"—30" x 44"
3—Sheridans 50 x 24 44 x 20 36 x 18
Embossers 48", 55" Waldron & 50" H.S.
1—60" x 35" Standard Die Press 0-23

FOR SALE

BEATERS

2—1500 lb. rag beaters, Valley Iron, bandless rolls, 54″ x 48″, cast iron tubs.

CALENDER STACKS

1—3 roll 84″ face.
1—4 roll 72″ face (Extra heavy duty).
1—5 roll 86″ face.

CHIPPERS

1—96″ Murray 4 knife Chipper—anti-friction bearings.
1—84″ 10 knife Carthage Chipper. Anti-friction bearings, with motor.

COATERS

1—27″ High Solid Coater.
1—42″ Chapman Extrusion Type Coater.

COUCH ROLLS (RUBBER COVERED)

6—18″ diameter x 138″ face

CRUSHER & HAMMERMILL

1—Murray Chip Crusher.
1—Williams Hammermill.
1—Jeffrey Shredder.

CYLINDER MOLDS

5—36″ diameter x 75″ face, with couch rolls.
1—36″ diameter x 82″ face.
1—42″ diameter x 96″ face.
2—42″ diameter x 106″ face.
2—60″ diameter x 170″ face.

DRIVES

1—Jones 21 H.P., ratio 10 to 1 (enclosed angle drive).
1—#4 Reeves Drive.
2—Falk Drives, 20 H.P. & 160 H.P.
4—Falk Chest Agitator Drives, 10 H.P. ratio 140 to 1.

DRYERS

1—16″ diameter x 54″ face (steel).
1—28″ diameter x 84″ face.
1—28″ diameter x 48″ face.
4—28″ diameter x 40″ face.
18—28″ diameter x 76″ face, with frames, gears & bearings.
2—28″ diameter x 62″ face, with frames, gears & bearings.
2—30″ diameter x 128″ face, bronze, with frames, gears & necessary rolls to make up the unit.
1—36″ diameter x 44″ face.
4—36″ diameter x 76″ face.
11—36″ diameter x 84″ face.
14—48″ diameter x 48″ face with bearings.
2—48″ dia. x 52″ face with frames, gears, bearings.
2—48″ x 60″ face frames, gears & bearings.
1—48″ diameter x 108″ face.
29—48″ diameter x 109″ face, complete section
6—48″ diameter x 130″ face.

EMBOSSING CALENDERS

1—43″ 3-roll Embossing Calender.
1—48″ 2-roll Meadows Embossing Calender.
1—51½″ 3-roll Smoothing Calender.
1—57″ 3-roll Embossing Calender.
1—62″ 2-roll Embosser.
1—90″ 2-roll Smoothing Calender.

FILTERS

1—Oliver, 10 ft. face x 5½ ft. diameter.
1—Oliver, 8 ft. x 12 ft., rubber lined complete.
1—Oliver Filter, 8 ft. x 8 ft.
1—Dorr-Oliver Filter, 3 ft. dia. x 6 ft. face, stainless steel construction, with pump.

FLAT SCREENS

1—12 Plate "Packer".
4—14 Plate IMPCO, bronze vats.

JORDANS

1—#1 Jones High Speed Jordan.
1—Jones Standard, new spare tackle, with 75 h.p. motor.
1—Noble & Wood Mammoth Jr., with spare plug.
1—Noble & Wood Baby Jordan, anti-friction bearings, with 20 h.p. motor.
1—#6 Miami, anti-friction bearings.

KNIFE GRINDER

1—70″ Seybold.

LABORATORY EQUIPMENT

1—Washer for 5 lb. Beater.
1—24″ Saveall, stainless steel.
1—20″ Fourdrinier Wet End & Press Section.
1—Noble & Wood Cycle Beater with motor & stand.
1—1½ lb. Valley Iron Beater.
1—5 lb. Beater.
1—Williams Freeness Tester.
7—Mullen Testers, motorized & hand operated.
1—2 qt. Auto Clave. Stainless Steel.
1—27″ High Solid Coater.
1—Noble & Wood Baby Jordan, anti-friction bearings, with 20 h.p. motor.
1—Emerson, Jr., No. 1 Jordans, anti-friction bearings.
1—24″ diameter x 24″ face Stainless Steel Cooling Drum.

MISCELLANEOUS

1—Shartle Hydrafuge, 1000 g.p.m. (with motor).

MOTORS

4—25 h.p. Westinghouse, totally enclosed, ball bearing. 705 r.p.m.

PAPER MACHINE

1—110″ Fourdrinier Paper Machine

PRESSAFINER

1—7″ Pressafiner, stainless steel construction, New 1955, with new spare motor.

PRESS ROLLS

2—Chilled iron, chrome plated 9″ x 72″.
1—Chilled iron, chrome plated 10″ x 74″.

PUMP

1—Economy Fan Pump 6000 g.p.m., 20′ head, 50 h.p. motor.

REELS

1—72″ Downingtown Reel, 2 bowl.
1—84″ 3 bowl revolving reel.
1—86″ 2 bowl reel.
1—100″ Rice Barton 2 bowl Reel, heavy duty.
1—116″ Downingtown, 2 bowl, anti-friction bearings.
1—123″ 3 bowl Revolving Reel.
1—130″ Pope Reel (Rice Barton).
1—134″ 2 Drum.

REFINERS

1—Rice Barton Dynofiner, details on request.
1—12″ Wiener Refiner, with 200 h.p. motor.
2—36″ Bauer double disc #185E Refiners, each with two 100 h.p. motors.
1—#4 Dilts Hydrafiner, anti-friction bearings.

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1—Valley Iron Roll Heading Machine, complete, for paper rolls 100″ long x 42″ diameter.

ROLLS

Felt, Table, Press, Breast, Couch, etc. Various sizes and types. (Bronze, Rubber, Iron, etc.)

ROTARY SCREENS

4—#2A Bird Rotary Screens, copper vats.
1—#2A—50 Bird, copper vat.
2—APMEW Rotary Pulp Screens.

SAVEALLS

1—Oliver, 10 ft. face x 5½ ft. diameter.
1—24″ Continuous Saveall, stainless steel.
1—LaMort 48″ diameter x 82″ face cylinder mold.
1—Saveall, Rice Barton, cast iron vat, cylinder mold 48″ diameter x 128″ face, complete with 18″ diameter couch roll, all in very good condition.
1—#5 Bird Saveall.

SHEETER

1—160″ Moore & White, simplex, complete.

SHREDDERS

1—16″ "Swift" Paper Shredder.
2—Taylor Stiles Rag Cutters.

SLITTERS & WINDERS

1—26″ Cameron Type 26-2A, with constant tension & electric eye.
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1—42″ Cameron Type 9.
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1—Downingtown suction couch shell only. 127½″ face 26″ diameter.

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American Bitumuls & Asphalt Co. ..... —
American Cyanamid Co.
Paper Chemical Div. ..... —
Dyes Dept. 41
Organic Chem. Div. ..... —
Pigment Div. 18B
American S.F. Products Inc. .. —
American Viscose Corp. ..... —
Ames, B. C. Company 52
Anglo American Clays Corp. .. 57
Anglo-Canadian Pulp & Paper Mills 18D
Anglo Paper Products Ltd. .. 18D
Anheuser-Bush, Inc. ..... —
Antara Chemicals, Sales Div. Gen. Analine & Film Corp... —
Apmew, Inc. ..... —
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Appleton Machine Co. ..... —
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Armco Drainage & Metal Prod. Co. ..... —
Armco Steel Corp. ..... —
Arnold Hoffman & Co. ..... —
Asten-Hill Mfg. Co.. ..... —
Atlantic Coast Line R. R. 54
Atlas Chemical Industries ... —
Babcock & Wilcox Co. ..... —
Bahr Brothers Mfg. Co. ..... —
Bailey Meter Co. ..... —
Bauer Bros. Co. ..... Back Cover
Becco Chem. Div. Food Machy. Corp. ..... —
Beloit-Eastern Corp. ..... —
Beloit Iron Works Co. ...10A & B
B. I. F. Industries ..... —
Bird Machine Co. 17
Black-Clawson Co. 9
Black-Clawson International, Ltd. ..... —
Bolton & Sons ..... —
Brandon Sales, Inc. ..... —
British Titan Products Co., Ltd. ..... —
Broughton, A. E. & Co. ..... —
Brown Company ..... —
Bruderhaus (Maschinenfabrik Zum) ..... —
Buckeye Cellulose Corp. ..20 & 21
Buffalo Forge Co. ..... —
Butterworth, H. W. & Sons Co. ..... —
Cady, E. J. & Co. ..... —
Cadillac Associates Inc. ..... —
Cameron Machine Co. ..... —
Carthage Machine Co. ..... —
Celgar Ltd. ..... —
Cellulose Sales Co. ..... —
Chemical Industries Exp. ..... —
Chemipulp Process ..... —
Chromium Corp. of America .. —
Ciba Company ..... —
Clark-Aiken Company ..... —
Clarkson Company ..... —
Classified Advertising 58
Cleveland Crane & Engrg. .. —
Columbia Pulp Sales, Ltd. .. —
Combustion Engrg. Co. ..... —
Corn Products Sales Co. .... —
Crane Company ..... —
Davis, Frank H., Co., Inc. .. —
DeBergue Machine Tools, Ltd. —
Dempster Bros., Inc. ..... —
Deutsche Adka Gesellschaft .... —
DeZurik Corporation 46
Diamond Alkali Co. ..... —
Dierks Forests, Inc. ..... —
Directory of the Paper Industry (France) ..... —
Dixon Chem. & Res. Co. ..... —
Dodge Mfg. Co. ..... —
Dorries, O. A. G. ..... —
Dorr-Oliver, Inc. ..... —
Dow Chemical Co. .....44 & 45
Dow Corning Corp. ..... —
Doyle, J. E., Co. ..... —
Draper Bros. Co. ..... —
Dryden Paper Co., Ltd. ..... —
du Pont, E. I. de Nemours & Co., Dyes & Chem. Dept. ..... —
Electrochemical Dept. ..... —
Pigments Dept. 8
Duverre Inc. ..... —
Eaton Manufacturing Co. .... —
Ebasco Services, Inc. ..... —
Egan, Frank W., & Co. .... —
Electric Mchy. Mfg. Co. .... —
Elixman Paper Core Co. 57
Enjay Chemical Co. ..... —
Evans, W. P. & Son, Ltd. ... —
Export Supplement ..... —
Fabri Valve Co. of America .. —
Farrel-Birmingham Co. ..... —
Finckh, Herman ..... —
Fitchburg Screen Plate Co. ... —
Food Mchy. & Chem. Sales Dept., Chemicals & Plastics Div. 51
Food Mchy. & Chem. Corp. Chlor-Alkali Div. ..... —
Gardner International Corp. .. —
Garlock, Inc. ..... —
Geigy Chemicals Corp., Geigy Dyestuffs Co. ..... —
General Dyestuffs Co. ..Cover 3
Gibbs-Bower Co. 58
Glidden Company ..... —
Goodyear International Corp... —
Goodyear Tire and Rubber Co. ..... Cover 2
Gottesman-Central National Org. ..... —
Goulds Pumps 3
Great Eastern Packing & Paper Co. ..... —
Great Lakes Carbon Corp., Dicalite Dept. ..... —
Greening & Sons, Ltd. ..... —
Grinnell Co., The ..... —
Gurley, W. & L. E. ..... —
Hamblet Machine Co. ..... —
Hardinge Company, Inc. .... —
Harland Engrg., Ltd. ..... —
Harris-Seybold ..... —
Haveg Corporation ..... —
Hayssen Mfg. Company ..... —
Heimbach, Thomas J. ..... —
Hercules Powder Co. ..... —
Hooker Chemical Co. ..... —
Hooper, S. W., Corp. 7
Huber, J. M. Corp. ..... —
Hudson Sharp Machine Co. .. —
Hungerford & Terry, Inc. .... —
Hunt & Moscrop ..... —
Huyck Felt Company ..... —
Hyster Company ..... —
Improved Machinery, Inc. .... —
Ingersoll-Rand Co. ..... —
Inglis, John, Co. ..... —
Industriplanering ..... —
Jagenberg U.S.A., Inc. ..... —
Jagenberg Werke ..... —
Jamesbury Corp. ..... —
Jenkins Brothers ..... —
Johnson, Alvin H., Co. 42
Johnson Corp., The ..... —
Jones, E. D., Corp. ..... —
Kalamazoo Tank & Silo Co. .. —
Karlstads Mekaniska Werkstad —
Kenyon, James & Son ..... —
Kidder Press Co. ..... —
Knox Woolen Co. ..... —
Kopper Co., Inc. .....42A & B
Krauss-Maffei-Imperial G.m.b.H. ..... —
Lamb-Grays Harbor Co. ..... —
Lamort Fils ..... —
Langston, Samuel Co. 23
La Papeterie ..... —
Laporte Titanium Ltd. ..... —
Leje & Thurne, A. B. ..... —
Lestoil, Inc. ..... —
L'Homargy ..... —
Link-Belt Co. ..... —
Little, Arthur D., Inc. ..... —
Lob, Albert Maschinen und Apparatebau ..... —
Lockwood Greene Engrg. Inc. —
Lodding Engineering Co. ... —
Lukon, Inc. ..... —
Lunkenheimer Co. ..... —
Lyddon & Co. ..... —
Main, Charles T., Inc. 42
Manchester Machine Co. ... 53
Marathon—A Division of American Can ..... —
McLean, Ltd. ..... —
Mecke, Klaus, & Co. ..... —
Metron Instrument Co. ..... —
Miller Corp., Harry ..... —
Millspaugh, Ltd. ..... —
Mine and Smelter Supply Co. —
Minerals & Chem. Philipp Corp. ..... —
Minneapolis-Honeywell ..... —
Mixing Equipment Co. ..... —
Monsanto Chemical Co. ..... —
Montmorency Paper Co. 18D
Moore & White ..... —
Morden Machine Co. ..... —
Mt. Hope Machinery Co. ... —
Mt. Vernon Mills, Inc. ..... —
Multi Metal Wire Cloth Co. .. —
Murray, D. J., Mfg. Co. ..... —
Nalco Chemical Co. ..... —
Nash Engineering Co. ..... —
National Aniline Div., Allied Chem. Corp. ..... —
National Perforating Corp. .. —
National Starch & Chemical Corp. ..... —
National Tube Div., U. S. Steel Inc. ..... —
Newport News Shipbldg. & Dry Dock Co. ..... —
New Jersey Zinc Co. ..... —
Neypric ..... —
Nichols Eng. & Research Corp. ..... —
Noble & Wood Mch. Co. .... —
Nopco Chemical Co. ..... —
No. American Mogul Products —
Norton Co. 10D
Norton Co., Sir James Farmer —
Oakite Products Inc. 6
Olin Mathieson ..... —
Osborne Paper Mill Equip. Co. —
Overly's Inc. 19
Paper Conv. Mch. Co. ..... —
Parsons & Whittemore ..... —
Patton Mfg. Co. ..... —
Penick & Ford ..... —
Pennsylvania Indust. Chem. Corp. ..... —
Penobscot Chemical Fibre Co. —
B. F. Perkins & Sons, Inc. .. —
Perkins Goodwin Co. ..... —
Pfaudler Permutit Inc. ..... —
Pumpindustri A. B. ..... —
Pioneer Paper Stock Co. ..... —
Pittsburgh Plate Glass Co., Chem. Div. ..... —
Porter, H. K., Co. 10
Potdevin Machine Co. 57
Powell Valves ..... —
Price & Pierce, Ltd. ..... —
Puget Sound Pulp & Timber Co. 42C
Rader Pneumatics ..... —
Rayonier, Inc. ..... —
RCA Industrial Electron Prod. —
Record Fdy. & Mach. Co. .... —
Red Ray Mfg. Co. ..... —
Remington Arms Co. ..... —
Rhoads, J. E., & Sons ..... —
Rice Barton Corp. 12
Riedel, Gus & Son ..... —
Riegel Paper Corp. ..... —
Rockwood Sprinkler Co. ..... —
Rohm & Haas Co. ..... —
Ronningen-Petter Co. ..... —
Roosevelt Paper Co. ..Front Cover
Ross, J. J. Co. 59
Ross, J. O., Engrg. Co. ..... —
Ross Midwest Fulton Corp. .. —
Ross Paper Machinery Co. ... —
Ruderman Machinery Service 61
Rust Engineering Co. 42
Sandoz Chem. Wks. ..... —
Sandy Hill Iron & Brass Wks. —
Scapa Dryers ..... —
Seaboard Air Line R. R. Co. —
Shawinigan Resins Corp. .... —
Sheffield Corp. ..... —
Shuler & Benninghofen ..... —
Signode Steel Strapping Co. —
Sinclair Company ..... —
Sirrine, J. E., Co. ..... —
Smidth, F. L., & Co. ..... —
Smith & Winchester Mfg. Co. —
Solvay Process Div., Allied Chem. Corp. ..... —
Sonoco Products Co. 43
Southworth Machine Co. .... —
Spraying Systems Co. ..... —
Sprout Waldron & Co. ..... —
Stadler Hurter & Co. ..... —
Staley Mfg. Company ..... —
Starch Products, Ltd. ..... —
Stebbins Engrg. Co. ..... —
Stein, Hall & Co. ..... —
Steinen, Wm., Mfg. Co. ..... —
Stone & Webster Eng. Corp... 18C
Stowe-Woodward, Inc. ..... —
St. Regis Paper Co., Kraft Div. ..... —
St. Regis Paper Co., Panelyte Div. ..... —
Sturge Ltd., John & E. .... —
Sunday, George M., Assoc. .. 58
Tampella OY ..... —
Taylor Instrument Co.'s ..24 & 25
Taylor-Wharton Company .... —
Tennessee Corp. ..... —
Texaco, Inc. 55
Texas Gulf Sulphur ..... —
Thermal Equip. Corp. ..... —
Thiele Kaolin Co. ..... —
Thomas Paper Stock Co. ... 57
Thompson, John, Co. ..... —
Tidland Machine Co. ..... —
Titanium Pigment Corp. ... —
Torrington Co. ..... —
Tyer Rubber Corp. ..... —
United Engrg. & Fdy. Co. .. —
Universal Metal Hose Co. .... —
U. S. Steel Corp. ..... —
Valley Iron Works ..... —
Vanderbilt, R. T., Co. ..... —
Vapo Systems Co. ..... —
Virginia Chemicals & Smelting Co. ..... —
Voith, J. M., G.m.b.H. ..... —
Wagenknecht, A. P., Co. 47
Waldron-Hartig Div., Midland Ross Corp. ..... —
Wartsila Koncernen A. B. .. —
West End Chemical Div., Stauffer Chem. Co. ..... —
Weyerhaeuser Co. 10C
Williams-Gray Co. ..... —
Wisconsin Wire Works ..... —
Woodpulp, Inc. ..... —
Wyandotte Chem. Corp. .... —

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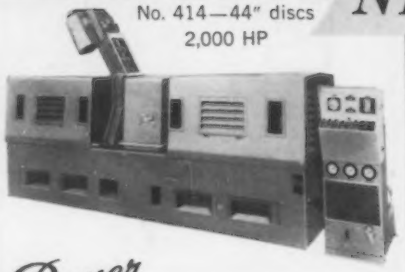

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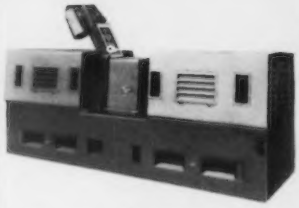

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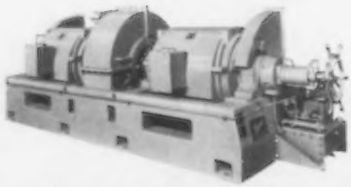

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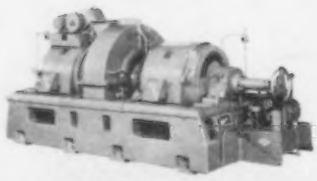

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